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November 1988 **$6.00**

How Leak Detection Fits In New Tank Regs
Why Denver Market Is So Tough On Jobbers
How Marketer Makes Automation Pay

NPN
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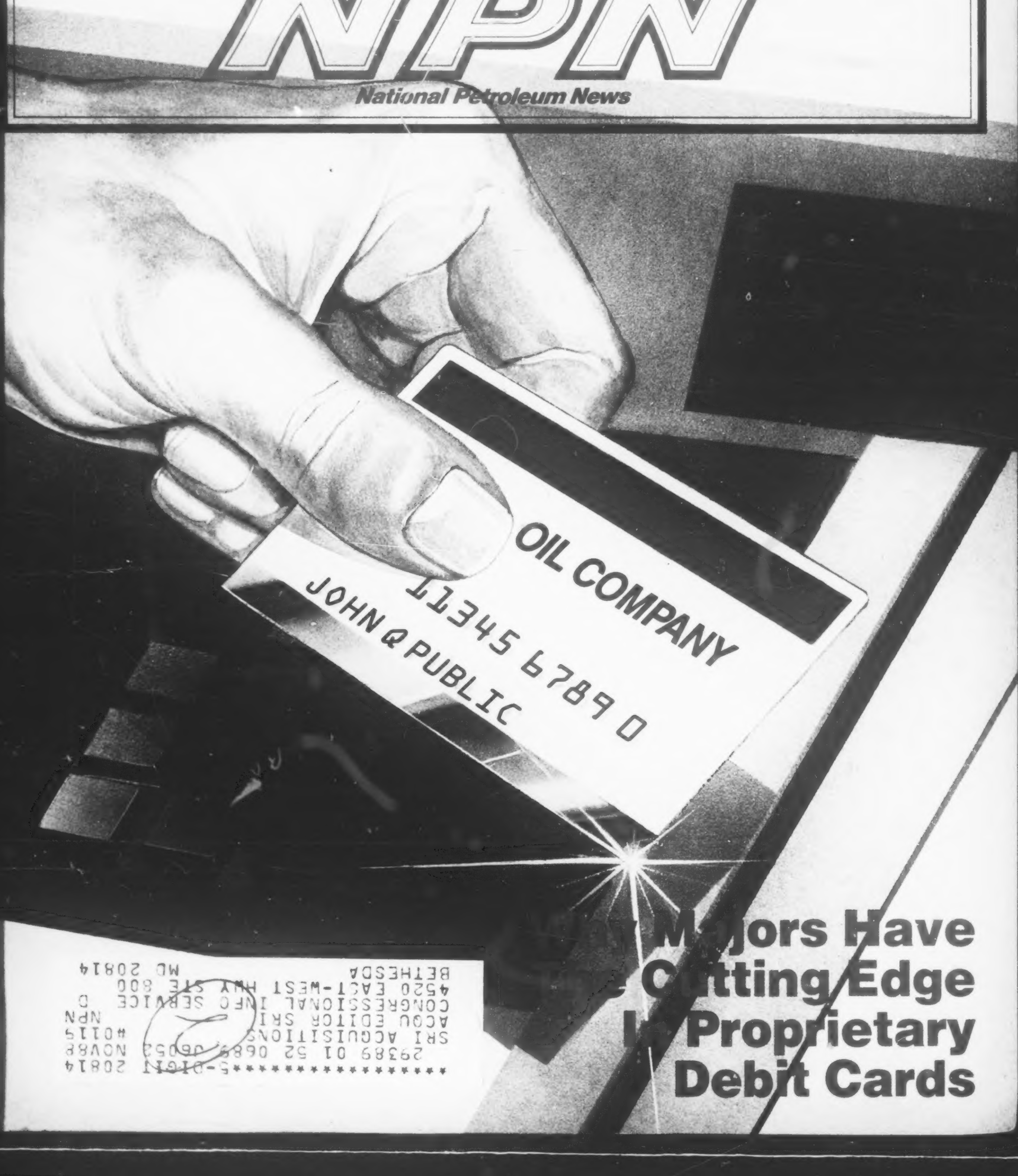

Majors Have Cutting Edge In Proprietary Debit Cards

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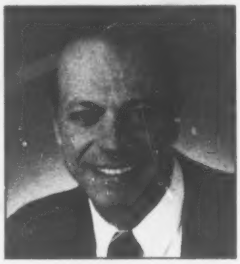

Editor's Viewpoint

Just about every industry I've covered as part of the trade press has had a good line up of associations. But I can say without reservation that few, if any, are as good as those in this industry. PMAA, SIGMA, API and others, as well as all the regional and state groups, do an outstanding job of representing, informing and serving their members in a variety of ways. As with most organizations, this performance is directly attributable to competent, professional, hard working staffs who are genuinely dedicated to this industry and the jobbers who operate in it. What they do and how they do it is sometimes controversial—and often taken for granted.

In addition to these associations, which focus mainly on affairs specifically geared to petroleum marketing, there is another group which until perhaps 10 years ago wasn't very important to most jobbers. But times change and one of the biggest changes is the increased importance of C-stores. Concentrating its efforts on this segment of the market is the National Assn. of Convenience Stores (NACS).

If there are marketers operating C-stores who do not belong to NACS, I strongly recommend you join. Since coming to NPN two years ago, I have been impressed with the professionalism of this organization, the wide range of services, information and instructional programs they offer members and their solid commitment to lobby legislators on issues important to convenience store operators.

My impression was further strengthened when I attended the association's recent 27th Annual Meeting and Exposition. The program included more than a dozen workshops and six roundtable discussions on a variety of pertinent topics such as C-store design and merchandising, attracting and holding good employees, automation and electronic payment systems, the impact of the new EPA regs on gasoline marketing, retail imagery, fast foods, financial and information management. The trade show included more than 800 exhibitors. Marketer/C-store operators from across the country were at the convention and NACS estimates total attendance was more than 10,000.

With the continued emphasis many petroleum marketers are placing on C-stores and the growing competition in that market as more and more players enter the field, the need for expert information on operating those C-stores becomes more and more important. NACS has proven itself to be a key source for that information.

—*Frank M. Victoria*

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am
PayPoint
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At least four major oil companies have moved to take charge of their debit card destiny by gearing their POS networks to accept proprietary debit cards, thereby bypassing regional bank networks. **Page 34**

Venta, Inc., a 60-store gasoline/C-store independent based in Denver, gets faster feedback of store operating data and saves money with an innovative, low-cost management system. **Page 42**

Not too long ago, independent marketers had the upper hand in Colorado's front range markets. Now, majors and regional refiner/marketers are investing heavily to regain lost market share. **Page 50**

• TRENDS

Is $5 Crude, 10¢ Product Price Cuts In The Making?

Roller coaster rides, with more downers than uppers, are in store for all segments of the petroleum industry this winter, with the possibility that gasoline and retail home heating oil prices may be knocked down as much as 10¢ gal. by spring.

It all depends (again) on the Organization of Petroleum Exporting Countries and especially the production wallop that Saudi Arabia is utilizing to force its fellow producers to the wall, or to their knees—whichever phrase may seem to be more appropriate for the occasion.

In mid-October there was talk that crude oil prices may be allowed to drift as low as $5 bbl. by springtime, which would be sheer disaster for U.S. producers and for debt-ridden OPEC states such as Algeria, Nigeria and Mexico. Exploration and production in the U.S., already at low and declining levels, unquestionably would grind to a near-halt. It also would force product price cuts up to 10¢ gal. from their present levels, according to industry economists and various Wall Street sources.

Such a price drop undoubtedly would foment Congressional demand for protective legislation, either in the form of import taxes or short-term barriers to block cheap foreign oil out of the picture altogether. Already, the Independent Petroleum Assn. of America, which represents small producers, is importuning both the White House and Congress alike to act before it's too late. The short-term problem here is that this is an election year and neither the outgoing Reagan Administration nor the incoming Bush or Dukakis regimes—whichever one wins—would be necessarily gung-ho to take on such a potentially explosive problem at such a time in history.

In mid-October, mostly as a result of Saudi excesses, OPEC production was running about 4-million b/d above the so-called quotas that were supposed to hold prices to the $17-$18 bbl. range. But the $17-$18 range was more ethereal than realistic. In mid-October, West Texas Intermediate—the U.S. benchmark crude—was in the $12-bbl. range. Great Britain's North Sea Brent, another benchmark, was in the $11 range for November delivery and several Arab crudes were perilously close to the $8-bbl. level in the international spot market.

There were deja vu feelings that perhaps another collapse similar to the 1986 cave-in was in the making. Marketplaces and especially the futures pits, as might be expected, reacted giddily as rumors replaced reason and speculators tried to capitalize on tenuous buy/sell hedges.

The one saving grace, if a collapse to $5 crude could come, is that the fall would not be as precipitous or as shattering as occurred in 1986. The greater likelihood is that crude prices might erode to perhaps the $8-bbl. level. The big question mark is how long they would stay there before crawling back up to more respectable levels.

Industry supposition is that refiners would buy and stock the cheap crude oil but would be slow in passing the price decreases down the line. Most refineries are operating in the 85%-90% range now so there is little incentive for them to discount product prices.

The crude oil glut is going to exert heavy pressure on street prices for gasoline, however. That, in turn, could be more injurious to jobber-retailer margins the longer the situation prevails. Lower pump prices could deplete the cash flows of many marginal retailers and force them against the wall, especially those in the gasoline-only business without supportive ancillaries such as convenience stores, car washes and fast lube facilities.

The impact of cheap crude could also bring about a new wave of merger thrusts. Some cash-weak and troubled companies with under-valued stocks like Diamond Shamrock, Phillips Petroleum, Union Oil and Apex Oil, to cite a few, could become bargaining chips by late winter or early spring. Even Texaco Inc., which is still rocking on its heels as a result of corporate raider Carl Icahn's attempt to win control last summer, can hardly be considered healthy enough to withstand another battering.

All things considered, this winter could be another exceptional and hairy period for marketers to cope with. Those caught off guard or in weakened financial straits could find themselves as statistics rather than entrepreneurial activists.

—by J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

AUGUST	Gasoline (All types)	Leaded Regular	Unleaded Regular	Premium
U.S. City Avg.	$1.004	$0.945	$0.987	$1.138
Regions:				
Northeast	1.012	.929	.974	1.152
North Central	1.021	.981	1.013	1.160
South	.999	.932	.976	1.125
West	.988	.936	.983	1.130

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (Add 000 bbl.)

	9/2/88	9/4/87
Gasoline (total)	216,794	224,308
Gasoline (unleaded)*	137,033	132,494
Jet Kerosine	40,401	40,503
Distillates	123,850	123,520
Residual	38,800	42,662

** Included in gasoline total*
Source: American Petroleum Institute

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Fuel Oil Outlook: Cheap And Plenty
Why Marketers Operate Their Own Fleets

NPN

National Petroleum News

Foreign Producers Target Downstream Operations: What It Means To Oil Industry

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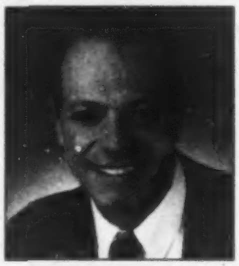

Editor's Viewpoint

The offensive on downstream operations—in both the United States and abroad—by foreign oil producers is gaining momentum, and industry attention lately is riveted on how far it will go and what it will mean.

Many domestic refiners and marketers are concerned. Companies in partnership with the oil producers could well have a competitive pricing edge in buying crude, an edge that would flow through the refining and marketing process all the way down to the pump. That could get out of hand. If it turns into a battle for market share, broken bodies could be strewn all over the arena. To increase their share of the market, producers might be forced to lean on their downstream partners to slash street prices and compensate them for it by cutting their crude prices. The nose-dive in prices would be bad enough for refiner-marketers who have partnerships with producers. But what about those who don't? One jobber put it mildly: If a producer starts setting a refiner's jobber prices, "you guys (other jobbers) are in deep Tapioca."

It's also possible that the oil producing countries might, as the integrated multi-national major oil companies did a few decades ago, concentrate on making their profits upstream in production and, consequently, run as much crude through refineries as fast as they can, flooding the market and driving down street prices. But that might not be all bad. For a lot of jobbers, the '50s and '60s were glory days. But the party couldn't go on forever and the industry paid a heavy price with the dramatic shakeout in the '70s when thousands of stations and many jobbers went belly up.

There are, however, brighter prospects. Some knowledgeable and respected industry people have little or no fear of downstream integration—and, in fact, think it may be beneficial. Some are convinced it is the most natural and logical arrangement and that an efficient oil industry may be impossible without it. They see downstream integration as a stabilizing force, noting that as producers become involved with downstream marketing they have a stake in maintaining an orderly market. The chances of an oil cutoff, for instance, are sharply reduced, and producers who engaged in price cutting at the pump would undermine profitability for the whole industry, including themselves. The Government Accounting Office (GAO), for example, says its research shows the connection "between producing countries and consuming countries through downstream ventures has tended to add stability to the world oil market."

The one potential fly in the ointment is some event which prompts an oil cutoff. That changes the scenario and you'll need a whole new set of pieces for a whole new puzzle.

—Frank M. Victoria

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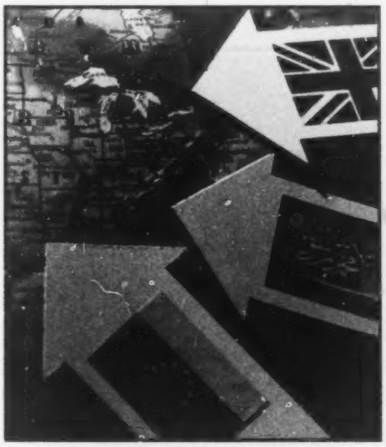

Texaco and Saudi Arabia. Coastal and China. Citgo and Venezuela. The list grows, and so do questions from marketers concerning the ultimate fallout of U.S. downstream integration by foreign countries. Page 30

What's in a name? Increased gasoline and store sales if you happen to be Johnson Oil Co. in Columbus, Ind. Business began to boom when the company adopted a catchy new name and logo—Bigfoot—for its C-store chain. Page 42

All the numbers suggest that not only will fuel oil be plentiful this winter, but that the world oil glut could trigger a price collapse as occurred in 1986. Much depends on what OPEC does. Page 46

Industry Profits Could Set Records For '88

If crude and product prices are relatively the same in the fourth quarter as they were in the third, just about every oil marketer should be singing happy songs early next year as 1988 earnings reports are toted up.

This applies to virtually all of the major oil companies and most of the second-tier companies and independents as well. It's going to be difficult indeed for most companies to lose money.

In the box scores below, increases are on the fantastic side—as high as 5000%. Remember that although percentages are frequently good barometers, they often are thrown out of perspective by the root numbers involved..

Nine-Month Nets: Up, Up And Awaaaay

(Millions of dollars)

	3 Qtr. 1988	3 Qtr. 1977	% Chng.	9 Mos. 1988	9 Mos. 1987	% Chng.
Exxon	$1,225.0	$1,065.0	15.0%	$3,880.0	$3,285.0	18.1%
Mobil	557.0	330.0	68.8	1,625.0	874.0	85.9
Chevron	420.0	297.0	41.4	1,593.0	1,016.0	56.9
Texaco	239.0	108.0	121.3	1,008.0	355.0	183.9
Shell	352.0	420.0	(16.2)	1,860.0	795.0	134.0
Amoco	552.0	412.0	34.0	1,688.0	983.0	71.7
BP-America	N.A.					
Arco	391.0	315.0	24.1	1,192.0	884.0	34.8
Tenneco (a)	—	—	—	—	—	—
Conoco (b)	71.0	76.0	(6.6)	323.0	195.0	65.6
Sun	72.0	137.0	(47.4)	(69.0)	265.0	—
Phillips	215.9	31.0	593.5	515.0	2.0	—
Unocal	97.0	29.0	234.5	339.0	152.0	123.0
Marathon (b)	183.0	125.0	46.4	387.0	458.0	(15.5)
Coastal	9.2	11.7	(21.4)	86.3	78.1	10.5
Amerada Hess	15.8	38.6	(59.1)	57.9	309.4	(81.3)
Ashland (c)	66.2	65.5	1.7	223.9	133.4	67.8
Diamond Shamrock	19.8	2.7	633.3	26.9	(1.7)	—
Pennzoil	39.3	4.7	736.7	1,400.0	26.4	5203
Kerr-McGee	30.5	18.0	69.4	76.6	66.3	15.5
Murphy	10.1	7.8	29.5	13.1	18.0	(27.8)
Amer. Petrofina	35.2	21.2	66.0	100.0	69.7	43.5
Citgo	N.A.					
Cumberland Farms	N.A.					
Getty	N.A.					
Circle K	N.A.					
Total Petroleum	39.3	1.3	—	33.1	24.0	37.9

(a) Tenneco, Inc. was in the process of liquidating its Tenneco Oil Co. division in the third quarter; (b) operating income, not net; (c) fourth quarter and full year, fiscal ends 9/30.

Downstream: Happy Days Are Here Again

(Millions of dollars)

	3rd Qtr. 1988	3rd Qtr. 1987	% Chng.	9 Mos. 1988	9 Mos. 1987	% Chng.
Exxon (total)	$537	$80	571%	$1,249	$135	825%
Domestic	220	7	3042	414	(50)	—
Foreign	317	73	334	835	185	351
Mobil (total)	219	71	209	701	241	191
Domestic	143	51	180	332	70	376
Foreign	76	20	280	368	171	115
Chevron (total)	243	20	1115	565	28	1918
Domestic	186	54	244	411	2	—
Foreign	57	(34)	—	154	26	492
Texaco	325	31	948	693	55	1160
Domestic	202	4	—	402	(63)	—
Foreign	123	27	356	291	118	147
Shell	152	68	124	395	132	199
Amoco (Worldwide)	319	97	229	631	147	329
Arco	121	30	303	280	100	180
BP-America	N.A.					
Conoco	99	33	200	254	104	144
Phillips (b)	130	59	120	302	137	120
Sun (total)	87	25	248	208	41	407
Domestic	86	21	310	204	24	750
Foreign	1	4	(75)	4	17	(77)

(b) Operating income, pre-tax.

• TRENDS

What Happens To The U.S. Highway System After '91?

Beyond 1991, there is no national plan for highway improvement, development, and expansion—and none in sight. This is in the face of widespread deterioration of the highway and bridge system, growing congestion—approaching gridlock on many urban streets—and horrendous national debt competing with highway spending.

Compound this dilemma with the fact that highway travel is growing by as much as 7% a year in fast-growing states and metropolitan areas, and that overall highway travel is expected to double by the turn of the century.

Motor fuel suppliers and many other transportation industries are worried about this awesome void and are trying to provide a program and leadership that will fill the gaps through to the year 2020.

With 1991 drawing near, highway backers for the past two years have been working to put together a program that, if adopted, would meet the goals they envision for the U.S. road system. The effort has been led by the Highway Users Federation, a national coalition of businesses, industries and associations promoting improved highway transportation safety and efficiency.

At a national conference in Washington D.C. in September, a major national highway program for the future emerged, a consensus worked out and endorsed by more than 500 business leaders and government officials, a cross-section of people involved in highway construction and use from every state. The conference was called the most important meeting on highway transportation in more than 30 years.

They came up with no magical formulas, because the problems associated with highways and roads do not lend themselves to that kind of solution. But a plan was laid out that its developers feel would carry the nation's transportation system along efficiently, well into the 21st century. The plan also includes price tags to give everybody some idea of what kind of expenditures are required.

The consensus is that the goals are reasonable and the cost is manageable, although steep.

Overall, the program would require an estimated annual investment by all levels of government of between $80- and $100-billion a year. Current highway expenditures by all levels of government total about $66-billion. Therefore, the improvements call for an increase of 20-50% annually.

Safety improvements are a high priority, because even at the present fatality rate, traffic deaths resulting from increased highway travel may exceed 80,000 a year by the year 2000, compared with 46,000 in 1987.

Another important goal is to expand the role of state and local governments while reducing federal controls. The separation of federal funds into hundreds of fiscal categories has made a nightmare of obtaining money for road work.

As for likely costs, here is a summary of goals and expected annual funding needs for "The Future Highway Program of America":

- Interstate travel—Up to $8-billion in improvements, the addition of lanes, and expansion, including a possible additional 10,000 to 20,000 miles of new interstate-type highways.
- Urban transportation—With urban congestion becoming a major national problem, individual block grants of up to $4-billion for roads and transit services; increasing transit expenditures from the general fund to as much as $3-billion from the current $2.1-billion.
- Rural transportation—$2-billion for upgrading and to begin a new program to develop scenic roads. Up to $3-billion for bridges alone, in rural and urban areas. Roads in national forests and parks, $300-million.
- Safety—An increase to $800-million from the current $560-million, with emphasis on driver education, safety engineering, law enforcement, and motor-carrier safety.

The Highway Users Federation is expected to approve the program by the end of 1988 and present it to Congress and the Administration in early 1989. HUF will seek Congressional hearings on the program in 1989, aiming for passage and signing into law by the president by late 1990.

The petroleum industry will get plenty of opportunity to help develop nationwide awareness and acceptance of the program. *—by J. Richard Shaner*

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

SEPTEMBER	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$0.992	$0.933	$0.974	$1.130
Regions:				
Northeast	1.007	.924	.969	1.147
North Central	.993	.950	.985	1.135
South	.986	.919	.962	1.117
West	.988	.936	.983	1.129

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (Add 000 bbl.)

	10/28/88	10/30/87
Gasoline (Total)	215,00	619,751
Gasoline (unleaded)*	139,544	130,630
Jet Kerosine	41,469	42,512
Distillates	128,786	124,921
Residual	40,105	46,923

** Included in gasoline total*

Source: American Petroleum Institute

NPN

NATIONAL PETROLEUM NEWS **DECEMBER 1988**

IPAA 1988 Forecast: More Of The Same

Play it again, Sam. Declining U.S. production, modest increases in demand and another hefty upswing in imported oil—that's the industry scenario for 1989 foreseen by the Independent Petroleum Assn. of America in its traditional fall supply/demand forecast.

There's nothing startling about IPAA's outlook for next year; in fact, it tracks pretty well with industry trends of recent years.

The following are a few of the particulars in the report:

- Domestic product demand is expected to increase by 1.2% in 1989, compared to IPAA's projected 2.1% increase by the end of 1988. Anticipated sluggish economic conditions will dampen the growth in demand, IPAA suggests.
- Domestic crude oil production will decline by 2.4% or almost 200,000 b/d in 1989, about the same as projected for 1988, according to IPAA.
- As would be expected with the increasing supply/demand imbalance, crude oil imports are expected to jump 6.9% next year to an average of 5.3-million b/d. Total imports next year will average 7.4-million b/d or 41% of domestic supply.

IPAA's supply and demand committee chairman, Les Deman, Texas Eastern Corp., says that because of declining oil production, "I think we could face a very critical problem in terms of vulnerability."

IPAA's 1989 Outlook: U.S. Supply/Demand Gap Growing

(thousands of b/d)

	1st Q	2nd Q	3rd Q	4th Q	F.Y. '89	F.Y. '88*	% Chng.
TOTAL DEMAND							
Motor Gasoline	7,028	7,567	7,519	7,382	7,375	7,302	1.0
Aviation Fuels	1,514	1,472	1,509	1,530	1,506	1,466	2.7
Mid. Distillates	3,600	2,940	2,833	3,330	3,174	3,152	0.7
Residual Fuel	1,519	1,156	1,201	1,289	1,290	1,290	0.0
Other Products	3,798	3,746	4,047	3,891	3,872	3,800	1.9
Domestic Demand	17,459	16,881	17,109	17,422	17,217	17,010	1.2
Total Exports	822	768	741	782	778	801	(2.9)
Total Demand	18,281	17,649	17,850	18,204	17,995	17,811	1.0
TOTAL SUPPLY							
Domestic Production							
Crude Oil	8,074	8,018	7,957	7,952	8,000	8,196	(2.4)
Natl. Gas Lqds.	1,605	1,599	1,600	1,603	1,602	1,603	(0.1)
Total Production	9,679	9,617	9,557	9,555	9,602	9,799	(2.0)
Imports							
Motor Gasoline	407	461	473	436	444	435	2.1
Aviation Fuels	78	106	79	66	82	80	2.5
Mid. Distillates	302	233	260	303	274	282	(2.8)
Residual Fuel	694	445	507	549	548	544	0.7
Other Products	664	656	733	773	708	701	1.0
Total Production	2,145	1,901	2,052	2,127	2,056	2,042	0.7
Crude Oil Imports	4,852	5,389	5,469	5,650	5,343	4,998	6.9
Total Imports	6,997	7,290	7,251	7,777	7,399	7,040	5.1
Other Supply	951	1,087	1,052	922	1,002	1,016	(1.4)
Total Supply	17,627	17,994	18,130	18,254	18,003	17,855	0.8
Refinery Inputs	12,950	13,604	13,621	13,471	13,414	13,320	0.7
ENDING INVENTORIES (Million bbl.)							
Motor Gasoline	231.8	219.4	218.4	223.9	223.9	223.8	0.0
Aviation Fuels	48.0	47.3	49.1	47.8	47.8	48.6	(1.6)
Mid. Distillates	103.3	115.3	145.0	141.2	141.3	142.3	(0.7)
Residual Fuel	43.4	42.5	44.3	45.7	45.7	46.1	(0.9)
Other Products	256.8	291.2	287.1	277.1	277.1	280.6	(1.2)
Total Products	683.3	715.7	743.9	735.8	735.8	741.4	(0.8)
Crude Oil	340.7	339.7	337.3	350.0	350.0	341.5	2.5
Total Stocks	1,024.0	1,055.4	1,081.2	1,085.8	1,085.8	1,082.9	0.3

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*Estimated.

Source: Independent Petroleum Assn. of America, Supply & Demand Committee Report, October 1988.

Domestic Crude Reserves Up, But New Finds Still Lag

Total U.S. crude oil reserves were up by 1.4% in 1987, the first increase in three years according to the Energy Information Administration's latest estimate of U.S. petroleum reserves. The net increase from the previous year was 367-million bbl., bringing the U.S. total to 27,256,000 bbl., EIA says.

However, about two-thirds of EIA's reported increase, or roughly 2.5-million bbl., was due to upward "revisions" in the agency's earlier estimates. The net increase was also helped by the fact that domestic crude production was 100-million bbl. less in 1987 than in 1986, in effect rolling over that unproduced crude into the reserve total.

Total crude oil discoveries were also up in 1987, increasing 691-million bbl. or about 30% above the year-earlier discovery rate, but still 22% below the average of the past decade. More than half of the new-field discoveries were made in Alaska's North Slope.

Other positive factors cited by EIA in the improvement in reserves included the strengthening of wellhead prices in 1987 and enhanced recovery programs in Alaska, California and West Texas.

While crude reserves improved somewhat, proved U.S. natural gas reserves dropped for the sixth straight year to 187.2-trillion cu.ft. in 1987, reflecting, EIA says, a big drop in exploratory drilling, record low discoveries and higher natural gas production.

In another report, this from accounting firm Arthur Andersen and Co., it was shown that the number of independent oil producers in the U.S., who drill 75% of domestic onshore wells, had declined from 165 in 1985 to 117 in 1987. Lower crude prices have been cited as the main culprit in the decline, since those prices effectively prevent producers from recovering their drilling investments.

The falling crude prices of recent weeks are expected to deal another blow to the already ailing energy-based economies of Texas and other oil patch states.

U.S. Crude Oil Reserves: 1981-1987
(Millions of bbl.)

Year	Net Revisions And Adjustments	Total Discoveries	Production	Proved Reserves-Dec. 31	Net Annual Change (%)
1981	1,409	1,161	2,949	29,426	−1.3%
1982	351	1,031	2,950	27,858	−5.3
1983	1,973	924	3,020	27,735	−0.4
1984	2,604	1,144	3,037	28,446	+2.6
1985	2,027	995	3,052	28,416	−0.1
1986	912	534	2,973	26,889	−5.4
1987	2,549	691	2,873	27,256	+1.4

Source: Energy Information Administration

Petromark Holding Its Own With Tank Claims

While more and more insurance companies are feeling squeezed by increases in marketer claims for underground storage tank releases, a Petromark official says its losses have not been substantial.

Max Clay, president of the organization, says most of the spills reported stem from excess levels of hydrocarbons from overspills, rather than tank leaks themselves.

Since Petromark was formed in February it has had about 60 claims with a payout of about $1.3-million. By the end of this year the company will have insured more than 1,000 marketers. It now has 910 on the books.

"Our losses have been modest. But as marketers replace more and more tanks we anticipate we will see even more problems," says Clay.

Substance Abusers Cost Business $50-Billion

American business pays a $50-billion annual penalty for alcoholism and illegal drug use in the workplace, says a leading authority.

Alcoholism and illegal drugs in the workplace leads to absenteeism, sick leave, accidents, decreased employee performance and production and increased health and other insurance costs. Also, the company's image is tarnished and its ability to compete against increasingly aggressive rivals diminishes, says J. Kenneth Cagney in a guide entitled *Personnel Manager's Guide to Beating the Drug & Alcohol Problem in the Workplace.*

He says more than six million alcoholics are on the payroll of American business. According to the National Council of Alcoholism, alcoholics cost companies more than $30-billion a year and drug abusers cost employers $20-billion annually.

Because these costs are so exorbitant, Cagney's manual is designed to provide extensive information on the detection control and treatment of substance abuse. In his guide, he provides sample policies, drug charts, case histories and successful approaches used by leading companies.

In addition, the manual discusses survey results on what employers are doing about this problem, a directory of consultants to state occupational alcoholism programs, a listing of local ALMACA chapters, area facilities offering treatment and counseling and a supervisor's guide to on-the-job alcoholism and drug problems.

The guide is available for $79.95 plus $3 postage and handling. For more information or to order, write Suzanne Shelton at the HIRE Institute, 1730 N. Lynn St., Arlington, VA, 22209. Or call (703) 841-8150.

Unocal's EFT Policy Debits Dealer Rent

Unocal Corp. has made a broad commitment to automatically debiting monthly rent payments from dealer accounts in the West and Northwest, anchoring its reasons for the rollout to enhanced efficiency, both for the dealer and the company.

A Unocal spokesperson says the rent fees are automatically deducted from accounts on the 25th of each month. Formerly, a statement was sent to dealers.

The Unocal representative says after some initial dealer reservations—a characteristic of electronic funds transfer programs early in their implementation, she reasons—dealers have generally been favorable.

Among the states where Unocal has introduced EFT debiting are California, Arizona and Nevada.

Lubricant Sales Growth Better Than Expected

Total sales of lubricants in the United States surged by 5.7% last year to a total of almost 2.5-billion gal.—an unexpected jump in an industry where paper-thin increases in volumes, or even declines, from year to year are the norm.

According to the latest *Report on U.S. Lubricating Oil Sales* published by the National Petroleum Refiners Assn., sales of automotive oils increased by 5.6% to 1,458-billion gal. from 1986 to 1987.

Sales of automotive crankcase oils and transmission and hydraulic fluids were the highest recorded in the 1980s (see chart), increasing by more than 4.9% and 10.7%, respectively.

Total industrial oil sales were up 5.3% in 1987 to about 974-million gal. Metalworking oils paced this sales growth with a 10.6% increase.

Sales of non-SAE J-183 engine oils, which include aircraft and two-stroke engine lubricants, were relatively flat in 1987, increasing only 0.4% according to the NPRA survey.

Total grease sales were up 5.5% in 1987 to almost 57-million gal., but that figure is still below the 62-million gal. total of 1980.

The NPRA data also reveals some fairly prominent shifts in market share among the various lubricant categories since 1981. The major shift has taken place between monograde and multi-grade oils, which had rougly equal market shares in 1981. In 1987, the multi-grades, with 32% of total lubricant sales, had taken a better than two-to-one lead over monogrades (15%).

From 1981 through 1987, automotive lubricants increased their share of total U.S. oil sales from 57% to 60%, according to NPRA, while industrial oils tailed off to 40% of the total market in 1987.

For the complete survey report, contact the NPRA. Their mailing address is 1899 L St. N.W., Suite 1000, Washington, DC 20036.

U.S. Lubricant Sales: 1980-1987
(Millions of Gal.—Rounded Numbers)

	1980	1981	1982	1983	1984	1985	1986	1987
AUTOMOTIVE OILS								
SAE J-183 Engine Oils (a)	1,003	986	957	1,018	1,093	1,082	1,097	1,151
Non-SAE J-183 Engine Oils (b)	24	23	21	22	22	24	23	23
Transmission/Hydraulic Fluids	190	181	181	189	207	206	210	232
Gear Oils	48	50	45	48	53	52	49	51
Total Automotive	1,265	1,240	1,204	1,278	1,375	1,383	1,379	1,458
INDUSTRIAL OILS								
General Industrial Oils	420	410	332	345	366	367	357	385
Industrial Engine Oils	157	152	134	134	141	139	136	141
Metalworking Oils	91	90	77	84	85	87	76	84
Process Oils	291	291	251	272	303	326	352	364
Total Industrial	959	942	795	836	895	921	921	974
Total Grease (c)	62	62	51	55	61	57	54	57
Total Lubricants	2,286	2,244	2,049	2,168	2,331	2,341	2,354	2,488

NT: Data for previous years includes respondent revisions.
(a) Includes monograded and multigraded.
(b) Includes aircraft and gasoline fueled two stroke.
(c) Conversion from lb. to gal. (7.5 lb. = 1 gal.)
Source: National Petroleum Refiners Assn.

Pending Legislation Could Squeeze Marketer Finances

Mandatory health insurance and minimum wage increases coupled with underground storage tank replacement and financial responsibility insurance regulations will undoubtedly hurt marketers financially, warns Truman Arnold, CEO of Texarkana, Texas-based Truman Arnold Co.'s.

Arnold says the combination of these three obstacles will cost his company more than $2-million a year.

"These are some big ticket items. Just one of them most likely won't break a marketer, but all three combined certainly can," says Arnold.

One Midwest jobber concurs. He says low-volume stations will not be able to absorb the costs. "The economic impact is just too great even for large jobbers who have several stations," he says.

Minimum wage advocates were pushing legislation to increase the federal minimum wage from $3.35 an hour to $4.55 over the next three years, an increase which would cost American businesses approximately $48-billion.

The 100th Congress voted against an increase and the minimum wage will remain at $3.35 an hour.

The National Assn. of Convenience Stores' members fought against the hike, which incidentially, was their number one legislative priority.

Even though minimum wage failed, legislation is still pending in Congress requiring that employers provide a "minimum" level of health insurance to all employees and their dependents.

The legislation also requires employers to provide for all medical care, including serious illness, and to shorten the waiting period for the coverage. The company must also pay at least 80% of the costs. So far, no action has been taken on the proposed legislation.

Arnold says if the minimum health insurance is required for all employees, premiums would boost his costs by more than 50%.

"Only time will tell which chain operators will land on their feet and who will take it on the chin," says Arnold.

Foreign Producers Target Downstream Operations: What It Means To Oil Industry

The rapid, aggressive thrust by foreign oil producers into U.S. refining and marketing operations is attracting increased attention—and generating growing concern.

The swift beachhead they've established in the domestic oil market, however, is only part of an international phenomenon. The United States just happens to be the current primary target. In fact, the global scope of the development makes it one of the most significant since those same oil producing countries nationalized their petroleum

By Mark Emond
Contributing Correspondent
and NPN Staff

industries in the 1970s and helped shatter the reign of the so-called "Seven Sisters," the multi-national integrated major oil companies which dominated the worldwide oil market for decades.

It's called "downstream integration" or "reintegration," meaning that the upstream, or crude oil end of the business, is forming commercial ties with the downstream, or refining and marketing end.

In principle, there's nothing new in this, because integration existed generally in the oil industry internationally prior to nationalization in the oil producing nations.

But what's going on now is a rebirth of another form of integration. It's the bringing together of separate ultimate producers, mostly nations, with separate ultimate sellers, mostly companies. The purpose is to form a stable and secure relationship from wellhead to consumer in a very uncertain oil world.

The questions this growing trend raises are fundamental. What is the fate of each segment of the industry, with and without integration, and what is the fate of each member of each segment with or without a deal? Is the trend irreversible and how far will it go?

And what does it mean for U.S. oil marketers, who are largely helpless to influence whether or not downstream integration takes place with their suppliers? The swift course of events could already be casting their future.

Some U.S. refiners may be in a position to decide whether or not to integrate with a producer and some may not because they aren't deemed desirable partners. Some with a choice may prefer to go it alone at their own possible peril.

U.S. and international majors and some other large integrated oil companies, the big players in the drama, probably have two choices: whether to integrate, and with whom. Oil is not forever, producers are not forever, and neither is the present glut of crude. Finding out too late what was the right choice might not be that far down the road.

In short, oil industry players are standing at the threshold or the brink, depending on what they are and the choices they make—or somebody makes for them. It won't be long before they find out whether their prospect is an open door or an empty chasm. And it may turn out to be just one or the other.

International scope

Internationally, downstream integration has been gaining steam for several years. John R. Ferriter, the U.S. State Dept.'s deputy assistant secretary for international energy and resources policy, goes through a few highlights:

> *Industry players are at the threshold or the brink, depending on what they are and the choices they make—or somebody makes for them.*

Kuwait and Venezuela have been investing downstream since the early 1980s. However, their strategies have only recently attracted a great deal of attention in OPEC as a result of the price downturn of the last several years."

Kuwait markets much of its total output as refined product, both from its refineries in Kuwait and in Europe.

Venezuela owns interests in refineries in Germany and Sweden, but has put its major effort into the United States.

Other producers are doing the same. Norway's Statoil expanded into Danish and Swedish refining, marketing, and distribution in 1985-86. Libya added to its Italian marketing operations in 1987. Mexico bought a refinery in Spain. Privatization of Spanish industry is attracting a good deal of foreign investment (see chart on page 30 for list of U.S. downstream investments).

And that's just part of the list."

Jobber Bill Wright, chairman of Western Marketing in Abilene, Texas, sees downstream integration as an integral part of "the globalization of business." He calls it "a growing partnership between government and free enterprise," adding that "it seems to be the trend around the world in most businesses."

Jobber John Arnold, chairman of Petroleum Products Corp., Harrisburg, Pa., says interest in integration runs both ways, upstream and downstream, and it's global. He notes that when Saudi Arabia announced it was interested in downstream investment, the Wall Street Journal reported 40 companies responded with written proposals.

There are some holdout areas. Ferriter says Japan doesn't allow downstream integration there. As a matter of fact, it's probably out of the question in the retail segment because 78% are private businesses operating only one station. The Japanese government is restructuring the country's petroleum industry and is unlikely to allow any foreign investments until the process is complete, he adds.

Given a free and open economy, integration appears to have little opposition, in its present dimension.

Why integration is natural

For most of the oil industry's history, it was integrated by the international major oil companies: the "Seven Sisters"—Exxon, Mobil, Socal, Texaco, Gulf, Royal Dutch Shell, and British Petroleum—plus CFP (Compagnie Francaise Petroles).

These companies explored for oil in foreign lands, most finding bonanzas of one dimension or another—many enormous. Since their organizations operated from wellhead to the marketplace, they were in a position to control the complex petroleum distribution system.

The controlling system and its workings are described lucidly by a participant, M. Sylvan Robinson, former president of Shell International Trading Co., London, and now chairman of joint energy programs for the Royal Institute of International Affairs. He explains:

The Seven Sisters and CFP "controlled production in the major producing areas through a system of interlocking concession arrangements. Most companies had interests in more than one concession area. Production capacity and production allowables were agreed for each concession area by voting procedures that broadly insured that capacity was not brought on stream at a rate greater than world markets could absorb. The markets were also dominated by the same producer companies, sometimes in combination."

Each of the companies was integrated, and the whole system was integrated, vertically and horizontally. After nationalization, the producing countries lost the integration and, therefore, the control.

The U.S. General Accounting Office, the investigative arm of Congress, sees downstream integration as an economic need of the oil industry. In a recent study called "An Overview of Changes in the World Oil Market," GAO says, "Efforts by OPEC countries to integrate the various segments of their oil industries are driven by the

Downstream Investments by OPEC Producers

Buyer	Seller	Country	Year	Type of Asset
Kuwait	Gulf	N. Europe	1983	75,000 b/d refinery, Rotterdam 57,000 b/d refinery, Denmark 750 outlets in Benelux countries 825 outlets in Scandinavia
Kuwait	Gulf	Italy	1984	1,500 outlets in Italy and share in closed refinery
Kuwait	Hays	UK	1986	800 outlets in UK
Kuwait	Ultramar	UK	1987	465 outlets in UK
Kuwait	Nafta	UK	1987	53 outlets in UK
Kuwait	BP	Denmark	1987	389 outlets in Denmark
Venezuela	Veba	W. Germany	1983/85	Joint refineries, West Germany 110,000 b/d, Scholven (50%) 100,000 b/d, Horst (50%) 144,000 b/d, Neustadt (12.5%) 142,000 b/d, Karlsruhe (16%)
Venezuela	Southland/ Citgo	US	1986	50% interest, Citgo's 320,000 b/d Lake Charles, La., refinery
Venezuela	Nynas	Sweden/ Belgium	1986	50% interest in 3 refineries 25,000 b/d, Nynashamn, Sweden 12,000 b/d, Gothemburg, Sweden 15,000 b/d, Antwerp, Belgium
Venezuela	Champlin	US	1987	50% interest in 165,000 b/d Corpus Christi, Tex., refinery
Aramco, Saudi Arabia	Texaco	US	1988	50% interest in eastern US 250,000 b/d ref., Port Arthur 225,000 b/d ref., Convent, La. 140,000 b/d ref., Delaware City 1,450 owned and leased outlets 10,000 branded outlets
Abu Dhabi	Cepsa	Spain	1988	10% interest in Cepsa 160,000 b/d ref., Cadiz, Spain 130,000 b/d ref., Tenerife, Spain
Libya	Amoco	Italy	1983	70% interest in 105,000 b/d Italian refinery and 800 outlets
Libya	Fintermica	Italy	1987	70% interest, 800 outlets, Italy
Libya	Coastal	W. Germany	1988	Crude supply, 100,000 b/d refinery in Hamburg
Venezuela	Tenneco	US	1988	Bidder on 130,000 b/d refinery in Chalmette, La.
China	Coastal	US	1988	50% interest, 55,000 b/d refinery in Calif., marketing terminals
Venezuela*	Unocal	US	1988	50% interest, 151,000 b/d ref. in Lemont, Ill., 3,400 outlets in 12 Midwest states

Source: Petroleum Analysis Ltd., NPN.
* Tentative.

individual countries' needs to secure market access in major industrial countries for their oil and thereby generate additional oil revenues."

Robert O. Anderson, former chairman and CEO of Atlantic Richfield and now an integrated independent, views downstream integration as necessary and belated. "The only thing that's surprising is that it's taken them this many years to realize that to have access to markets, you really have to have some downstream position of your own," he says. "They're beginning to realize that having a position which is closer to the ultimate consumer is the only real security for an oil producer."

Anderson notes that nonproprietary, or nonequity oil is the last to sell. "Companies instinctively give preference to crude oil that's produced in areas where they have equity interest . . . Differentially, proprietary oil finds a market long before nonproprietary oil. Most of the Middle East countries today are selling nonproprietary oil, and now they're acquiring downstream operations and trying to restore the connection between the upstream and the downstream."

"The idea of going back to the old, integrated oil industry is not new," explains Marcello Colitti, energy adviser to ENI, the Italian national energy company. "It was born on the same day in which the producing countries obtained control of oil reserves but not of the oil market."

He is even more emphatic: "Running the oil business in the present nonintegrated fashion is not easy—it is perhaps impossible."

The need for integration affects almost everybody. He says, "We are back to the hard necessities of the oil industry. Only the integrated survive. That makes life hard for the majors themselves, who have to buy at least 40% of their crude from producing countries, and impossible to nonintegrated refiners and sellers, who, by their own very existence, create the product glut which kills them.

"The final challenge is therefore to reintegrate the oil industry."

State Dept.'s Ferriter says that as the U.S. becomes more dependent on imports, it is only natural that refiners will increasingly look to international integration rather than domestic integration.

John Lichtblau is president of the Petroleum Industry Research Foundation, Inc., (PIRINC), New York, an economics think tank which is supported by oil companies. He believes that "most of all, foreign integration gives domestic refiners secure access to crude at less cost than if they have to produce it themselves."

U.S. refineries, such as Citgo's Lake Charles, LA. plant, now co-owned by Venezuela, are prime targets for overseas producers. An estimated 18% of U.S. refining capacity is now controlled by foreign interest.

What producers want

Crude producers want and need secure markets. Within the Organization of Petroleum Exporting Countries, producers have been fighting a losing battle to maintain prices by limiting production levels. The 8-year-old Iran-Iraq war complicated the problem because Iraq would accept no production limits and Iran wanted higher prices supported by production cuts—clashing strategies, but both designed to support their war efforts.

Most producers discount prices to increase their sales, undermining their own official target price. Many producers exceed their quotas, flooding the market and weakening prices.

The point may be a little difficult to grasp, but it's understood by oil producers and the petro-financial community: For the largest oil producers, sales not made now are considered not merely postponed, but almost surely lost.

Duke R. Ligon, manager director, mergers and acquisitions, of Bankers Trust Co., New York, a company that helped Venezuela make its U.S. downstream deals with Citgo and Champlin, explains: "Because the average life of many producers' reserves is extremely long, they are keenly aware that the value of any production they fail to place today is virtually lost forever. To producers, the value of today's curtailed production is equal to the present value of the production on the last day of the reserve's life.

"I don't have to tell you" he continues "that the difference between that figure and zero is not even worth mentioning for a country like Saudi Arabia. This large difference in value between producing today and *maybe* producing later, in turn creates pressure on producers to discount their crude in soft markets.

"By establishing ties with refiners and marketers, producers obtain a sort of 'market insurance.' These ties enable them to force their crude through the system and avoid discounting heavily on the last few marginal barrels that would otherwise not find a home."

Italy's ENI adviser Colitti says, "OPEC producers are structurally unable to resist competitors who accept a lower price. In order to stop losing market share, they have no other way than to integrate downstream, in order to protect at least part of their oil from the crude-to-crude competition."

Some crude is harder to sell than others, for example, heavy or sour (high-sulfur). Jobber Arnold observes that many of the deals are with countries which have heavy crude and want to assure a place where it can be processed. State Dept.'s Ferriter also notes the motivation in some cases is to find a home for heavy or high-sulfur crude.

Stability or instability?

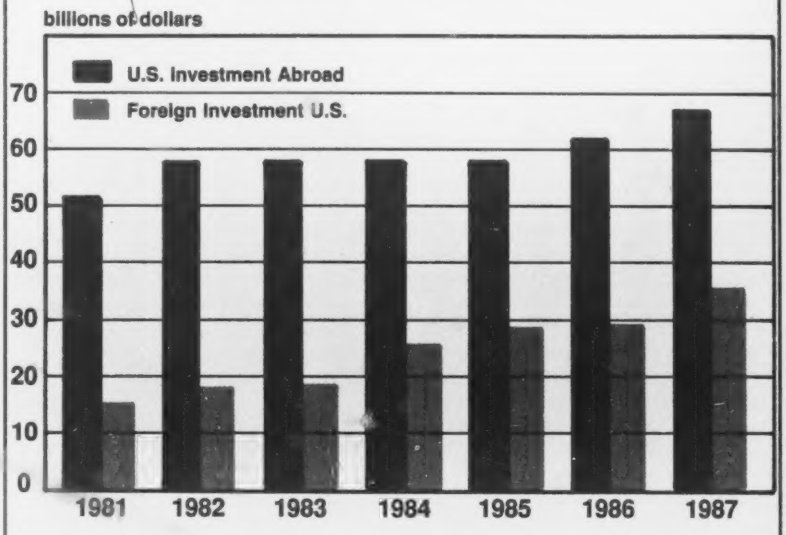
There's widespread belief that downstream integration will help stabilize markets, but there are many dissenters. CEO James Kinnear of Texaco, which is getting ready to launch a partnership with Saudi Arabia, believes it will.

CEO Ronald Hall of Citgo, already operating in a partnership with Venezuela, thinks so too, believing that the market effect has been one of stability with and no negatives having occurred as a result of the partnerships.

Venezuela, which has joint ventures with Citgo and Champlin and is testing another with Unocal, has said repeatedly its policy is to enhance stability in the downstream markets. The country also plans downstream integration in natural gas and petrochemicals.

Italy's Colitti, a believer, urges, "Accept,

Direct Petroleum Investment: 1981-1987*



*Includes 10% or more ownership by any foreign entity; includes production, refinery/marketing, transportation.
Source: Department of Commerce

actually support, reintegration of the oil industry. The entry of producers as downstream operators will create an important opportunity . . . The producers may get out of the difficult position of crude sellers and take some responsibility for the stability of the market."

He concludes, "Once the newcomer (producer) has taken over a reasonable market position, strongly aggressive marketing would only have the effect of lowering the profitability of the whole industry, including his own . . . There are clearly some rules of the game to be respected."

The conventional impression is that markets have been stabilized by producer investments. "According to some oil experts we contacted and studies we reviewed," says GAO, "the resulting linkage between producing countries and consuming countries through downstream ventures has tended to add stability to the world oil market."

Ferriter is of another mind. He says, "Most experts believe downstream integration will not necessarily enhance price stability . . . There are no volume reductions in any of these arrangements . . . Producers are seeking to minimize volume risks, not price risks."

Some think there can't really be security of supply when it's highly probable crude will go to whoever will pay the most for it.

Many say that if securing market share is an object, then price-cutting is inevitable. Bruce McCall, former marketing vice president of Conoco and now a consultant, asks rhetorically:

"What happens if Texaco can't move the 600,000 b/d? What's Saudi going to say to them? They sit around the board table 50-50 and say cut the price—we want to move some product. They'll do it. That will be the outcome. It's not all peaches and cream."

McCall mulls the mechanics of this process. "For producing countries, moving crude is how you make money. The cost of oil to the Saudis can't be more than 50-60¢ a bbl. Many producing countries started building their economies when oil was $28-$30 a bbl. That's why Saudi Arabia wants to have a cinch way to move crude. If Texaco can only sell 450,000 b/d because of pressure from other joint-venture companies, the Saudis will say cut the price: we'll cut the crude price from $14-$12, and we'll split the difference."

Jobber Wright adds, "If Saudi Arabia is setting Texaco's jobber prices, you guys (other jobbers) are in deep tapioca."

Michael Abercrombie, Cato Oil Co., Salisbury, Md., a Texaco jobber, is generally favorable to the prospect of the Texaco/Saudia Arabia joint venture. However, he concedes that if such joint-venture partners get too aggressive in a push for market share, "there could be a major brawl in the marketplace."

Importantly, the current downstream integration is vertical only, not horizontal, emphasizes Robinson of the Great Britain's Royal Institute of International Affairs. "That means that in itself it has no effect whatever on the balance between supply and demand. This has to be controlled, as now, through an honoring of an agreed system of quotas."

Robinson shares the belief that downstream integration will cause prices to be less stable—but, more importantly for refiners and marketers, it will move price competition into the product market.

He says, "It is extremely difficult to see how integration on the new model will have any serious effect on the current instability of oil prices. Indeed it is arguable that it could add to instability on two counts:

"First, downstream investments are highly capital intensive (costly) and there will be a strong motivation by the new owners to run crude through the system just so long as there is a cash positive margin available. As a consequence, production constraint is not encouraged by downstream investment.

"Second, a producer confronted with market-responsive product prices is almost bound to accept the concept of market-responsive pricing of crude into the refining system. This is probably not a bad thing anyway, but it is a final nail in the coffin of OPEC efforts to restore fixed prices into the crude-oil market.

"The end result is not a new price stability but a tendency for price competition to shift from the crude-oil market into the product market," he concludes.

William Haslam, president of Pilot Oil Corp., Knoxville, Tenn., thinks price swings occurring in the market are indicative of the effect of reintegration. He adds, however, that his company thrives in roller coaster conditions. "A volatile market is best for us."

Nonetheless, Haslam has some misgivings. Although the effect of foreign integration has been "negligible" so far, it could have a negative impact if the producers become satisfied with profits upstream and decide to unload product downstream with only moderate concern for the price it commands.

Nordine Ait-Laoussine, president of Nalcosa, an energy consulting firm based in Geneva, Switzerland, says downstream integration will not bring market stability because the fundamentals of supply and demand cannot be improved that way, conflicts between producers and consumers will remain, and price speculation and competition will continue.

Further, he says, "Downstream integration may, in fact, contribute to further volatility," because producers lose flexibility in where and at what prices they can sell, disparities in production of OPEC members widen, and the concept of an official price dies.

Ait-Laoussine concludes that even with downstream integration, production controls are crucial in achieving price targets, and that OPEC has been unable to achieve such controls.

(For Ait-Laoussine's summary of the

"myths and realities" of downstream integration, see accompanying sidebar, page 34.)

The downstream view

It's a pragmatic conclusion that refiners and marketers entering joint ventures with producing countries see advantages or they wouldn't be doing it.

But just as pragmatically, some see pitfalls which will tend to widen as more producers and refiners do the same and integrated ventures come into head-to-head competition in the marketplace.

John R. Hall, chairman and CEO of Ashland Oil, the biggest independent refiner/marketer in the country, lists why an independent refiner might be interested in a joint venture with a producer nation:

(1.) Long-term security of crude oil supply.

(2.) Access to raw materials at either an attractive price or a favorable refinery margin.

(3.) Cash from the purchase price paid by the new partner.

(4.) The availability of a partner to share in future investments.

(5.) Reduced exposure to industry volatility.

(6.) The "musical chair theory," by which he means the fear a company might find itself without a partner when the music stops.

Nowhere is it stated that some may hope to obtain a buying advantage over competitors—but it can hardly be overlooked as a possible reason.

Texaco's Kinnear has insisted the Texaco-Saudi company will buy Saudi crude in "arm's length" transactions, and he rules out any suggestions that the joint company would receive discounts on the crude it purchased from the Saudis.

Kinnear says the three joint-venture refineries, which run about 70% imported crude (much of that already from Saudi Arabia), won't run exclusively on Saudi crude; some of the remaining oil will be acquired through spot, or noncontract, purchases.

The option to buy elsewhere would protect the venture from possible inflated crude prices from the Saudis. But it doesn't exclude lower prices. It's difficult to imagine the joint company turning down a lower price if the Saudi objective was to move more crude oil.

Gene McGraw, Texaco's general manager of refining and marketing, says the company isn't particularly interested in lower prices, but rather in making a proper return on assets. But this doesn't mean that the proper return isn't contingent on good margins, which could be based on lower crude prices.

Jobber Wright says, "The new capital that comes into Texaco is going to enable them to be very, very aggressive in some locations and the kind of retail outlets they buy. Bear in mind that this money coming in is fresh capital and jobbers have to compete with capital that they generate from operations on which they are paying 32% taxes."

Since the Saudi joint venture is providing Texaco with an infusion of about $2-billion, the company can clearly intensify its expansion in marketing. Texaco wholesalers have quoted McGraw as saying that Texaco has only 2,500 investment (owned) stations, compared with 4,000-5,000 for some of its major competitors, and the company intends to catch up.

This would also appear to free up capital to enable Texaco to step up expansion in other parts of the country not involved in the joint venture.

Coastal Corp., which recently entered a joint venture with China, says it plans to upgrade its refinery and expand on the West Coast.

No doubt Citgo and Champlin can upgrade and expand with capital received from their deals with Venezuela.

Ashland's Hall says an infusion of capital would come in mighty handy in refinery upgrading made necessary by tougher standards set for gasoline and diesel fuel and for meeting other environmental regulations. In marketing, outside funds would help in expansion and meeting growing environmental costs, such as protecting against liabilities associated with leaking underground tanks.

Some refiners and marketers without sufficient capital might not be able to meet these challenges on their own.

Another Ashland spokesman, retired vice chairman Robert T. McCowan, compares a refiner integrating downstream into marketing with a producer integrating downstream into refining.

He says, "From our experience with refining and marketing integration, we believe that a production integration would be good for both the producing country as well as Ashland."

He continues, "Much depends on the structure of the arrangement since the price for the assets could be unattractive to the refinery if it has a low tax base requiring much of the money received be paid in taxes. The operating agreement could be the most crucial part of a joint venture, particularly for the refinery, especially if he does not have to pay much of the price received for taxes."

Ashland's tax base may not be the same as Texaco's or Citgo's. Ashland is not known to have made any deals — yet.

Conflicts of interest

Nothing is all roses, and any two parties can and usually will have different interests, any of which can come into conflict. In the case of producers and refiners, there are any of a number of possibilities, but crude prices sit smack in the middle as a leading contender for disagreement.

Branded Retail Outlets Supplied by Foreign–Affiliated U.S. Companies, 1984-1987

Company	1984	1985	1986	1987
Shell	11,010	11,129	11,133	10,947
Conoco (DuPont)	5,430	6,276	6,860	5,918
American Petrofina	4,385	4,429	4,209	4,117
Sohio/BP	2,100	2,900	8,100	7,550
Total	1,847	1,942	1,915	2,394
Atlantic	—	547	941	940
Ultramar	368	378	136	300
Husky	720	0	0	0
Citgo	—	—	7,296	7,458
Total Above	25,860	27,421	33,519	39,725
U.S. Total	132,080	124,600	120,150	115,870
% of U.S. Total for Above	19.6%	22.0%	27.9%	34.3%*

Source: Profiles of Foreign Direct Investment in U.S. Energy, 1987. Energy Information Administration, Department of Energy.

*Note: This percentage will increase sharply in the coming year or years. For the purpose of showing the approximate effect of Texaco/Saudi (11,450 outlets) and Unocal/Venezuela (3,400 outlets) joint ventures, if and when they go through, the total would be 54,575, or 47.1% of the U.S. total. Of course, station numbers will change in 1988 and 1989.

Ashland's CEO Hall nails the point down: "The price of the raw material is one issue on which the interest of each partner is different and could be the biggest source of conflict in the partnership . . . The price of raw material is a critical issue for independent refiners." In general, he feels there is an enormous potential for disagreement between producer and refiner.

Ashland's McGowan recognizes there are some possible problem areas. "Of course, there are always negatives that both sides of a joint venture must consider . . . Both the refinery and producer could very well have problems involving conflicts of interest that could be detrimental to either party."

Independent Robert O. Anderson, formerly Arco chairman, says, "I would have some real reservations in my mind about a 50-50 joint venture with a producing country. I'm not sure in the long run your interest would be identical."

It may not be in the best interest of an integrated major or of a refiner/marketer to buy exclusively from one company or even just a few companies. Britain's Robinson says, "An international, integrated company would normally expect to have commercial relationships with at least six or 10 primary suppliers. To create a bond to the exclusion of others and still link with a number of producers is a very difficult commercial, political, and diplomatic problem."

Integration: The Myths & Realities

The objective of downstream integration is to improve revenues and price stability, but Nordine Ait-Laoussine, president of Nalcosa, Geneva energy consultants, believes these hopes are built on myths. Here's how he sees it:

Myth: Refining and marketing adds value to crude.

Reality: Not for new entrants paying a premium in a stagnant market.

Myth: Downstream integration guarantees "offtake" of crude.

Reality: Pricing freedom is the key to assured offtake.

Myth: Volume security is important.

Reality: Revenue security should be the key objective.

Myth: Downstream integration improves market knowledge.

Reality: Perhaps, but not indispensable, and may not be the most efficient way to use scarce resources.

Myth: Integration will bring order and stability.

Reality: Market order requires much more. Integration will contribute further volatility.

Effects on competition

There are other ways besides those already covered in which competition can be affected by integration. Some, in fact, are so fundamental it's difficult to see how they could be avoided.

Consultant McCall believes some producers can set up the U.S. market for penetration and domination. He says, "Japan has taught us how to market: seek domination and penetration. When competition is driven out, the market is theirs and the price goes up. They've done it with TVs, small cars and other things. A supplier like Saudi Arabia with the lowest cost production and largest reserves in the world can very easily follow the same strategy."

Jobber Wright believes exploration and production will be curtailed as companies become adjusted to secure crude supplies. But no one knows how long this might last. He also believes the probability is greater that foreign imports will increase and gasoline taxes will be raised to offset a growing imbalance in international payments and to dampen consumption.

Italy's Colitti thinks some companies with upstream connections might cut down their refining capacity to the amount of their own equity oil plus their agreed purchases from oil producers. This would help reduce surplus refinery capacity, particularly in Europe.

There's concern that producing countries, because of their low-cost crude, can at any moment compete unfairly downstream. There are features of today's downstream that are totally unlike the previous integration of the major international oil companies. The differences could be crucial. British analyst Robinson explains:

"The old integration (of the international majors) came about as a consequence of commercial involvement both upstream and downstream . . . The new form represents something rather different—a push of national producing countries into the otherwise commercial downstream business.

"Nobody can be absolutely certain the upstream producers will supply crude on commercial terms or need to make commercial returns in their own country. So there is bound to be a nagging concern in the consumer world about the possibility of unfair competition and special treatment in respect to this new wave of investment."

Just about everybody sees a strong possibility that companies in joint ventures with producing countries will have an advantage over companies without them. Jobbers are particularly concerned about the "have-nots" being unable to compete with the haves.

Jobber Wright says flatly, "A company without a joint-venture arrangement and their marketers will suffer."

Consultant McCall, a former jobber, expects joint-venture companies to go on an expansion kick, and other companies will follow as they are prone to do. "We'll be flooded with convenience stores, just the way we were smothered with service stations in the past. Money and secure supply will put tremendous pressure on have-nots, particularly on the jobber side. Jobbers without it won't be able to compete."

In the case of a supply disruption, the advantage of a connection with an oil producer looms even greater. It is even reasonable to question whether not having such a connection would be fatal without government intervention.

Frank Knuettel, oil analyst for Prudential-Bache, New York, says that those companies which have not cut a deal with a producing powerhouse abroad may have to "grovel everyday for their next barrel of crude" while those linked to a producer are just about guaranteed supply.

Bob Mehall, group vice president-supply, for Diamond Shamrock Refining and Marketing, San Antonio, says the recent joint ventures have not affected the market in any significant way as yet. He expects ramifications only "if producing countries treat the downstream as a way of moving oil." However, Mehall doesn't anticipate this, noting that the Kuwaitis have acted with integrity so far in the European operations. He adds that foreign-American partnerships have not resulted in product being obtained less expensively. The real advantage he sees for such a partnership is if a shortage hits, in which case foreign producers will have an inside track.

Citgo: an acid test

Citgo jobbers appear to be demonstrable proof that companies with joint ventures can have an advantageous position. In 1986, Southland Corp. sold a half interest in Citgo to Venezuela, making Citgo a 50-50 partner with the OPEC member. Southland still owns the other half of Citgo.

NPN talked to several Citgo jobbers and they unanimously felt better off indeed, although they did not know for sure whether to credit the improvement to the Venezuela partnership or to the new chief executive, Ron Hall, and his new management team.

Daniel Ranks, controller of Knight Enterprises Inc., a Citgo-branded marketer in Farmington Hills, Mich., says, "I don't know whether the change has been the merger or just the new management. But there has been a change. It is working better. Pricing is better and very competitive."

Earl Lawson, owner of Lawson Oil Co., Lawton, Mich., says, "Prices in the last couple of years have been competitive. We weren't as competitive before."

He explains that before the merger, prices were 1/2¢ or more higher than they are now. Because prices are so competitive, he even buys his fuel oil from Citgo now. "It has been very beneficial for us and we are satisfied with the way things have been running," he adds.

Fred Kaplan, Red Kap Sales Inc., Schenectady, N.Y., says, "I have nothing but positive things to say about the Citgo-Venezuela partnership. We have gone from chaos to the best deal available for branded marketers."

Kaplan points out that this year's PMAA Supplier Cup Survey showed Citgo moving from unlisted last year to third among marketers in popularity. He believes the turnaround reflects Hall's strong management and implementation of strategic marketing programs.

"We are now competitive on price and have strong branded support programs. I talked to Venezuelan execs at president Hall's meeting in Florida, and they showed great interest in downstream activities, but gave no hint of meddling."

Meanwhile, Texaco marketers are watching developments in the Texaco-Saudia Arabia matchup with great interest.

"On the whole, I'm optimistic," says jobber Mike Abercrombie. "It was a logical move. Most Texaco crude for the eastern markets was supplied from overseas. Now, the company has a secure source.

"The deal should help Texaco marketers compete on more of an equal footing with other marketers," Abercrombie says. "We're not looking for a better price than the competition gets, just the opportunity to get out of the gate with an equal price, on a consistent basis."

Rules of the road

To prevent the ruination of refining and marketing profitability, Britain's Robinson believes there are certain criteria to be observed in downstream integration:

Foreign crude, shipped from the far corners of the globe, is finding a more "secure" home in U.S. markets, thanks to joint venture deals with producing countries.

- Refineries purchased by producers should be economic, that is sophisticated, otherwise the products will not be priced sufficiently high and will devalue the price of crude. "Inefficient refineries should be closed down to help improve the refining capacity balance, not given the kiss of life."
- Refinery improvements should not be made without the prospect of a commercial return on investment. This would simply reduce profitability of all refineries.
- Running excess crude (incremental barrels) should be avoided because it devalues profitability of all refineries.
- The transfer price of crude should be kept fully commercial. Unless producers look for a commercial rate of return on any new investments, "they are doing their own economies an injury, as well as the industry into which they are investing."

Robinson concludes these rules are difficult to follow today, which does not speak well for current downstream investments. "If the criteria outlined above are followed rigorously, it may be almost possible in today's conditions to make downstream investments," he says, because few refineries are for sale at commercially rational prices.

"The downstream business has picked up, expectations have improved, and the seller's idea of value is often a good deal higher than the price that a sensible buyer is prepared to risk taking," Robinson concludes.

The difficulties of making rational downstream investments at this time are seconded by Jack Neafsey, senior vice president, financial, Sun Co. He says, "In today's environment, refining and marketing assets are selling at a premium and crude oil prices are low. Coupled with a limited quantity of marketing assets in the major marketplaces, opportunities may be limited based on solid economics and consistency of objectives."

Sun has made known its willingness to make a deal with a producing country or countries. Nigeria has been mentioned most frequently. Nigeria says it plans to export 50-60% of its crude in the future through refineries and marketing facilities abroad in which it will hold an equity interest.

Transfer price problems

During the 1950s, '60s, and early '70s, integrated major oil companies and producers/refiners took maximum profits on crude oil because tax exemptions, such as the depletion allowance and intangible drilling costs, favored taking profits upstream. The industry was dedicated to pushing crude to market.

This was accompanied by inflated internal transfer prices that capitalized on crude profits, and nobody seemed to care if refining and marketing were losing money or profiting very modestly. The name of the game was selling crude, and refining and marketing were merely the means to that end.

That's when gasoline stations proliferated, often sprouting up four to an intersection, like weeds; station throughputs were pitiful, about a fourth of what they are today; and major oil companies recruited lessee dealers to their doom. It was an industry disgrace that, on average, stations would break three lessee dealers a year.

If the purpose of producing countries is to push crude to market—and why not?—it could bring back those hectic days of buying volume by building stations, refining incremental barrels and flooding the market, and dumping excess products in somebody else's backyard.

More recently, crude has been less profitable, and refining and marketing have become profit centers held accountable for earning a proper return on investment. Fictitious crude transfer prices have, for the most part, disappeared. The industry sectors are being run reasonably rationally.

Jobber Wright recalls the former days,

noting that "transfer prices have always been an enormous problem area between jobbers and their suppliers." He asks, "Will the Saudis tax their crude in a way that will actually move profits to Saudi Arabia tax free? Such questions have as much implication as the price the local marketer is going to have to compete with."

Britain's Robinson believes downstream integration might be a big setback for refining and marketing profitability. He says, "Because no system of cartelization is perfect, there is always a tendency to push crude through vertical channels. This was certainly true under the old integration system" of the international majors.

Tax laws favored crude oil, so that in the internal transfer between the upstream and the downstream, prices were held high, "leaving residual profits in the upstream to the detriment of the downstream." Refining and marketing were not treated as profit centers in their own right.

Recalling that in the late 1970s, after nationalization was substantially completed, when integrated companies set up refining and marketing as profit centers, Robinson says the requirement to perform was much to the benefit of the petroleum business.

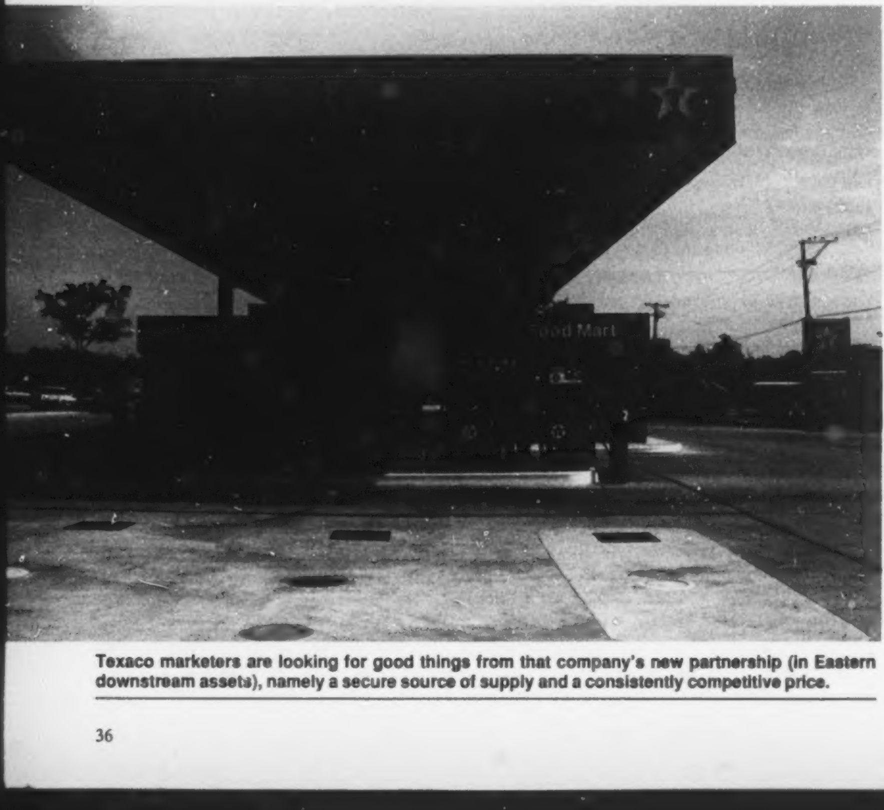
"It would be a tragedy if a new wave of downstream investments by producers were to upset this improved performance," Robinson declares. "If the motives of grabbing market share are the real ones which drive the new policy in OPEC, this is a real possibility."

Italy's Colitti believes independent refiners' time is running out. He says, "The slow increase of stability of the oil market in the next 10 years will make life for the independent refiner very hard. He will lose money because the netbacks will keep being lower than crude prices.

"On the other hand, he will be pressed to invest into sophisticating his plant by the combined pressures of the market and ecological regulations. Only the people with equity oil can survive in this market, and above all the equity producers *par excellence*—the producing countries."

Similarly, Bruce McCall thinks downstream integration is "another nail in the coffin of independents. Just like the small jobbers in recent years, they will disappear because of lack of competitive power and investing power. They will tend to be bought up by bigger companies.

"Competition is more and more among companies and countries with big bucks. I think we're getting into a game where only the biggies will last—the Exxons, the Chevrons. The smaller ones won't have the cash to compete with them. I think we have tough years ahead of us. I don't see the government stepping in."



Texaco marketers are looking for good things from that company's new partnership (in Eastern downstream assets), namely a secure source of supply and a consistently competitive price.

Closely associated with phony transfer prices is the thorny question of selling below cost. Although many below-cost selling laws are on the books, controlling margin-killing prices still largely eludes the industry in many areas.

McCall thinks crude producing countries could run competitors ragged if they had a mind to. "Below-cost laws have been tried. It's impossible to monitor. What's the Saudi cost? How do you prove it?" he asks.

McCall is also concerned about the difficulty of holding foreign countries to the terms of their downstream contracts. He says, "You can't force foreign governments to honor a contract. There are bound to be court battles, and remember the Iranians are still trying to get their assets back after nearly a decade."

John Lichtblau of PIRINC downplays some of these perceived perils in integration. "First, producers like Saudi Arabia want production quotas maintained and prices firmed, not markets awash in crude," he says. "Second, those companies are sensitive to the reaction they create in host countries. OPEC investments are being welcomed in Europe, but the European Economic Commission has warned that unfair marketing practices, such as predatory pricing, will not be tolerated.

"Also," says Lichtblau, "a predatory downstream strategy initiated by a producer could trigger retaliatory measures by other producers. In other words, why risk a loss of 500,000 b/d in upstream volume for a 50,000 b/d gain downstream."

How far will it go?

Joint downstream ventures by producing countries are spreading, no doubt about it. Saudi Arabia is on the move. Kuwait prefers wholly-owned ventures. Venezuela is very active and continuing. Nigeria says it has plans. China has uncorked a joint venture. There are others. But how far will the trend go?

One big independent refiner/marketer told NPN that there aren't many large independents that haven't been approached. And a large southern jobber reports one major foreign producer wanted to talk about buying his company.

Another well known refiner/marketer sees foreign interests continuing to move into American downstream industry but not becoming nearly the widespread development that the trade press has played up. A company spokesman says foreign producers haven't used their product access aggressively but have, rather, behaved with "normal conduct." Although the producing countries have the ability to drown the American domestic scene, they have resisted this, he says.

Ashland's Hall has given a lot of thought to the pros and cons of joint ventures and sees many pluses, but he seriously doubts that a majority of refiners in the U.S. will enter into a partnership with an OPEC nation.

He summarizes, "We believe that reintegration will continue but will not dominate the industry. We foresee that a significant third-party market for crude oil will continue for many years."

Texaco's Gene McGraw thinks downstream integration will eventually cover 50-60% of U.S. volume. He expects this to happen within 10 years, taking off about now.

McCall thinks joint downstream ventures will spread to more than half of the U.S. market.

State Dept.'s Ferriter believes downstream integration by producing countries is, to some degree, self-limiting. It costs a lot of money many don't have. "Almost all OPEC countries are running current account deficits," he says, "and financial constraints may cause them to forego downstream investment opportunities."

Further, he believes that since some downstream deals are motivated by a desire to secure an outlet for heavy crude, countries with high-quality crude should have no difficulty in continuing to market it without owning downstream assets. He adds that refineries are doing pretty well now, and "fire sale" prices are few or nonexistent.

Ferriter notes that some experts believe, on balance, that downstream integration will probably reach its peak with producer countries controlling some 10-15% of the western world's refining capacity.

He says most crude will continue to flow through nonintegrated channels where price competition and speculation will continue.

Britain's Robinson says, "Most crude will continue to flow through nonintegrated channels unless the whole of the downstream is taken over by producers—hardly a politically or commercially viable scenario. So the circle is not closed. Partial integration which does not control the whole market from the upstream to the downstream is unlikely to do much to stabilize markets."

Energy consultant Ait-Laoussine of Nalcosa differentiates between the first downstream investing producers and later ones. The process becomes harder and harder: they cannot always be selective in their investment decisions; their drive to integrate may intensify their constraints; they may end up paying a premium in a stagnant market; and disenchantment may occur as acquired capacity may have to be shut in.

Independent Robert O. Anderson believes there have been far fewer downstream approaches by producing countries than reports indicate. "A lot of the approaches you hear about are fishing expeditions by third parties, rather than directly by the countries themselves," he says.

"The national producing companies are governments, and they just don't do business quite the way we're used to doing it in the private sector. I think the ventures will continue, but I think most of the plans that readily lend themselves to buy out have been acquired. But there are some left to go."

Anderson thinks, too, that downstream ventures are driven by the surplus of crude and consequent low prices. "If world oil markets recovered, by that I mean struck a reasonable balance, say in the $22-$24 bbl. range, I think the pressure to go downstream would be very, very greatly relieved."

There may be nearly a consensus that downstream ventures may not be forever and that they'll perhaps tend to disappear down the road when alternative crude sources start drying up and OPEC once again dominates the market.

Are there no alarms?

Have no doubt that downstream integration by foreign producers is being watched. There is an institutionalized general tracking of all direct investments in the United States by the departments of State, Treasury, and Commerce, to name three agencies.

There are any of a number of governmental and Congressional groups and individuals who are alert to what's happening and have served notice they think it could go too far.

But no alarms have gone off—and there's a reason. The scope of downstream investment hasn't gone very far.

Ferriter says the total direct investment in the U.S. is minuscule compared to our total capital stock—$262-billion of a total gross stock of fixed private capital investment of $13-trillion, or just 2%. He therefore feels that fear of foreign takeover of important sectors of the economy are exaggerated.

Despite headlines, says Ferriter, OPEC members have only about a 4% of total refining capacity in the U.S. and western Europe.

But while the U.S. welcomes well-conceived investments, "There are a number of policy issues which may arise and it will be necessary for the government to follow developments in this area closely."

PIRINC's John Lichtblau figures about 3.5% of Europe's refining capacity is structurally integrated with national foreign oil producing companies, and 7% of that in the U.S. after announced deals are completed.

He thinks growth of such investments in the future will be "much more modest" than they have been in the past five years.

Rep. Richard A. Gephardt (D-Mo.), speaking at a PIRINC conference, says, "In general, the limited level of activity we have seen so far does not present a problem. This country needs investment, both foreign and domestic."

But that's where his equanimity ends. "These trends make me somewhat uncomfortable," he says. "If the downstream investment trend accelerates, we risk

Integration May Need To Be A Two-Way Street To Work

Downstream integration by producing countries is an attempt to tie upstream and downstream together in a commercial relationship. But in its present form, integration may not succeed, some believe, because it is a one-way street—downstream only.

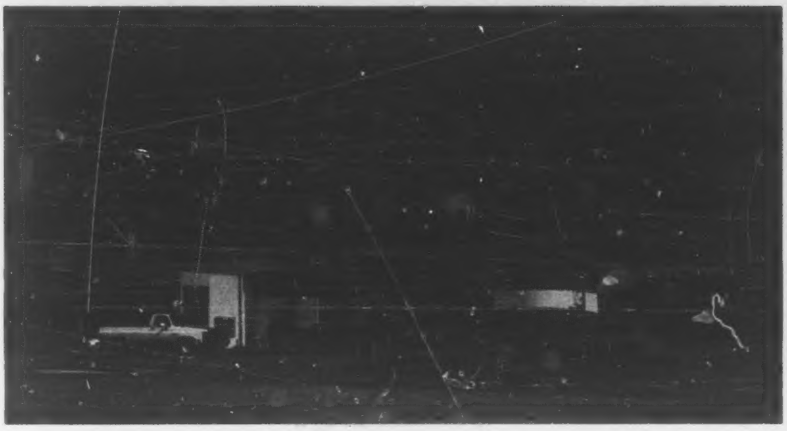
The integration that succeeded for many years prior to nationalization of the petroleum concessions in the 1970s was commercial and worked both ways within each of the eight international majors—the "Seven Sisters" and CFP (Compagnie Francaise Petrole.) In addition, the companies were interlocked horizontally because each integrated major had arrangements with several petroleum concessions.

Integration of the earlier form would require upstream integration by oil companies, says M. Sylvan Robinson, former president of Shell International Trading Co., London, and now chairman of joint energy programs for the Royal Institute of International Affairs.

"The creative approach to developing some sort of a linkage is a reciprocal linkage through asset swaps," he says. "This may be against the psychological grain in producecr countries."

He points out that a number of OPEC countries have retained—"no harm done"—foreign equity shareholders in their concession business: Nigeria, Abu Dhabi, and Indonesia; and outside OPEC, Oman, Dubai, and Yemen.

Such two-way integration would "reestablish some of the features of the classic form of integration," which worked, Robinson says, adding, "The present approach differs in many ways from the old system; the words may be the same but the tune is different and it is the tune that counts."



Citgo marketers say they are quite happy with the company's two-year-old joint venture with Venezuela. "Pricing is better and very competitive," says one.

recreating a degree of economic concentration that would bring back some of the political problems of the 1960s, when independent oil producers and refiners sometimes had problems working with vertically integrated companies."

He concludes:

"We should be particularly concerned about countries that have shown a willingness to make supply decisions based on noncommercial political objectives. Within the Congress, many of us will be keeping a close eye on developments. The administration should study and analyze these trends to ensure that they do not pose a serious problem. If the administration does not, Congress may have to do so."

There is an emotional response to foreign incursions of this kind that facts don't entirely deal with. Bruce McCall probably is speaking for many when he says, "Strictly emotionally, it scares me desperately to see the U.S. held by foreign people who don't have our interest at heart . . . Whatever you call it, it's still selling off America to foreign investors. I don't like it. I'd rather Americans own American companies."

Political weapon

As an economic phenomenon, downstream integration is one matter; as a political phenomenon, it is quite another. Petroleum, the world has learned, is a political weapon, and that has not been forgotten in present circumstances.

"Oil is regarded by most governments as a strategic asset, not only commercial," says Melvin A. Conant, president of Conant and Associates and editor of "Geopolitics of Energy."

He recalls the British government's investment in Iranian oil before World War I; U.S. withholding of oil from Japan in 1940-41, "a move which undoubtedly precipitated Japan's attack on Pearl Harbor;" U.S. interest during World War II in controlling Saudi reserves and pipelines to move oil to the Mediterranean; Saudi Arabia's moderation on oil prices to keep wartime pressure on Iran.

"These illustrations are among many of the political uses to which oil can be put when governments act on the strategic leverage which the commodity provides," Conant says.

He notes that the British government looked suspiciously at growing stock holdings of Kuwait in British Petroleum.

Britain has ordered Kuwait to cut its holdings to 9.9% from 21.6% on grounds that Kuwait "could be expected to exercise its influence in support of its own national interest." Conant thinks this sets an enormous precedent for downstream foreign investment.

Conant feels the U.S. has a unique security problem in the Middle East. He explains, "For as long as issues between Arabs and Israelis inevitably seem to bring the United States in on the Israeli side, there will be questions in any administration and among some of the public as to the reliability of supply from Arab producers. Oil is the only leverage most Arab producers have to try to influence U.S. conduct."

Conant declares, "Foreign investments in the U.S. are different from those of Shell or of BP . . . An oil executive or government official who cannot recall the political uses to which oil has been put is a victim of corporate or political amnesia."

The danger grows over time. As Conant puts it, "As supplies tighten, the greater will be the alert."

How Vulnerable Is the World To OPEC Petroleum Reserves?

The General Accounting Office, the investigative arm of Congress, has concluded that because of downstream integration the U.S. is less vulnerable in the short term to a supply disruption because of the increasing stake producers have in this country.

"However, given the inherent uncertainty of the market," GAO observes, "it is difficult to determine how long this trend will continue." One of the main grounds for concern is that remaining world oil reserves are concentrated in OPEC countries. When supplies tighten over time, dependency will grow.

In GAO's assessment, of the remaining recoverable oil in the world, about 67%, or nearly 795-billion bbl. "has been identified as either proved or inferred reserves and could be produced with current technology and existing prices." The remaining recoverable oil is defined as "undiscovered."

Of the remaining worldwide conventional oil reserves, the Middle East dominates with a 53% share (421-billion bbl.) of the total. Current production there could be maintained for many years.

All OPEC countries together, including those in South America, Africa, and Asia, account for about 66% of the total recoverable, conventional oil reserves. Saudi Arabia's share of the total recoverable reserves is substantial and is estimated to be about 166-billion bbl. of oil, or 21%, of the total. With significant reserves and current production levels, most OPEC countries will be producing oil well into the next century.

By way of comparison, says GAO, the United States and Canada together constitute only about 5% of the total remaining oil or some 53-billion bbl. The Soviet Union, China, and other centrally planned economies together account for about 107-billion bbl. of oil, or nearly 13% of total conventional reserves.

The remaining 110-billion bbl. of oil, or about 14%, are distributed among South America, Africa, Western Europe, and Asia/Oceania.

GAO concludes that the possible beneficial affects of downstream integration are limited over time because by the mid-1990s supplies are likely to tighten and "OPEC countries may no longer need joint or wholly owned downstream outlets to sell their oil.

"With the risk of losing market shares to non-OPEC suppliers reduced, some cartel members may be less constrained to participate in actions such as deliberate production cutbacks."

Why Most Marketers Operate Their Own Fleets

With today's tougher safety regulations, coupled with the ballooning costs of operation and declining hauling allowances from suppliers, it would seem that a lot of marketers would be anxious to sell their trucks and get out of the petroleum transportation business.

Not so. According to a recent study conducted by the publishers of National Petroleum News, 75.9%, or more than three-quarters of the petroleum products delivered by marketers were trucked in company owned-and/or leased equipment. Less than one-fourth (24.1%) of their transportation needs was handled by contract haulers or common carriers.

Also, most marketers with in-house fleets own rather than lease their trucks. The survey shows that except for tank trucks, over 90% of marketers own rather than lease the tractor/trailers, box trucks, vans, pickups, etc. they use to deliver their products.

Obviously, these percentages demonstrate that the majority of marketers feel they can cost-justify operating their own transport fleets. Personal interviews with individual marketer-truck owners indicate that many have found they can operate their own fleets profitably because of the more efficient and durable designs of today's transport equipment, improved vehicle fuel economy, tighter cost controls, better driver selection and training and around-the-clock truck operation.

Despite the costs of replacement and maintenance, many feel they can maintain better control and insure better customer service with their own trucks. In addition, some marketers find ownership gives them a decided edge in responding quickly to rack price movements.

In addition to the ownership data, the study provides detailed analyses of the average number of vehicles per fleet, including a breakdown by type of truck, the average age and miles of service of marketer vehicles, engine-type preferences, plus the types of equipment and options marketers specify for their fleets.

This marketer survey was conducted by the Hunter Energy Network using a balanced sampling of subscribers to NPN and two sister publications, Fuel Oil News and Petroleum/C-Store Products. Several hundred usable responses were generated by the survey and great care was taken to weed out data that could distort accurate profiles of typical marketer operations; for example, large C-store chains with hundreds of box-type trucks.

Flexible fleets

According to the Hunter survey, the ratio of usage of in-house vs. common carrier transports among oil marketers is fairly uniform throughout the United States (see Table 1). More marketers—almost 80% of those surveyed—own their own rigs in the Eastern and Western regions of the country. Contract hauling is more prevalent in the Midwest (29.7%), but seven out of ten marketers still operate their own vehicles in that area.

Oil marketers own or lease a variety of vehicles to handle their transport needs. As Table 2 shows, the average marketer

By Donald M. Smith
Senior Editor

Table 1: Who Hauls Product

	Marketers	Haulers
East	78.8%	21.2%
South	74.4	25.6
Midwest	70.3	29.7
West	78.4	21.6
Total U.S.	**75.9%**	**24.1%**

Table 2: Average Number Of Vehicles Per Fleet (Owned & Leased)

	Tank Trucks	Tractors	Tank Trailers	Box Trailers	Platform/ Box Trucks	Pickups/ Vans
East	4.5	4.9	5.5	6.3	1.8	5.4
South	2.7	3.0	2.9	1.5	1.6	2.8
Midwest	3.1	2.3	2.2	3.4	2.2	2.6
West	3.6	2.5	2.7	1.5	1.6	3.6
Total U.S.	**3.6**	**3.2**	**3.2**	**3.2**	**1.9**	**3.6**

Table 3: Percent Of Vehicles Owned—Not Leased

	Tank Trucks	Tractors	Tank Trailers	Box Trailers	Platform/ Box Trucks	Pickups/ Vans
East	86.7%	91.8%	90.9%	100.0%	94.4%	81.5%
South	100.0	86.7	89.7	93.3	100.0	92.9
Midwest	100.0	100.0	95.5	100.0	100.0	100.0
West	100.0	100.0	100.0	100.0	100.0	97.2
Total U.S.	**87.2%**	**93.8%**	**93.8%**	**98.3%**	**99.9%**	**91.7%**

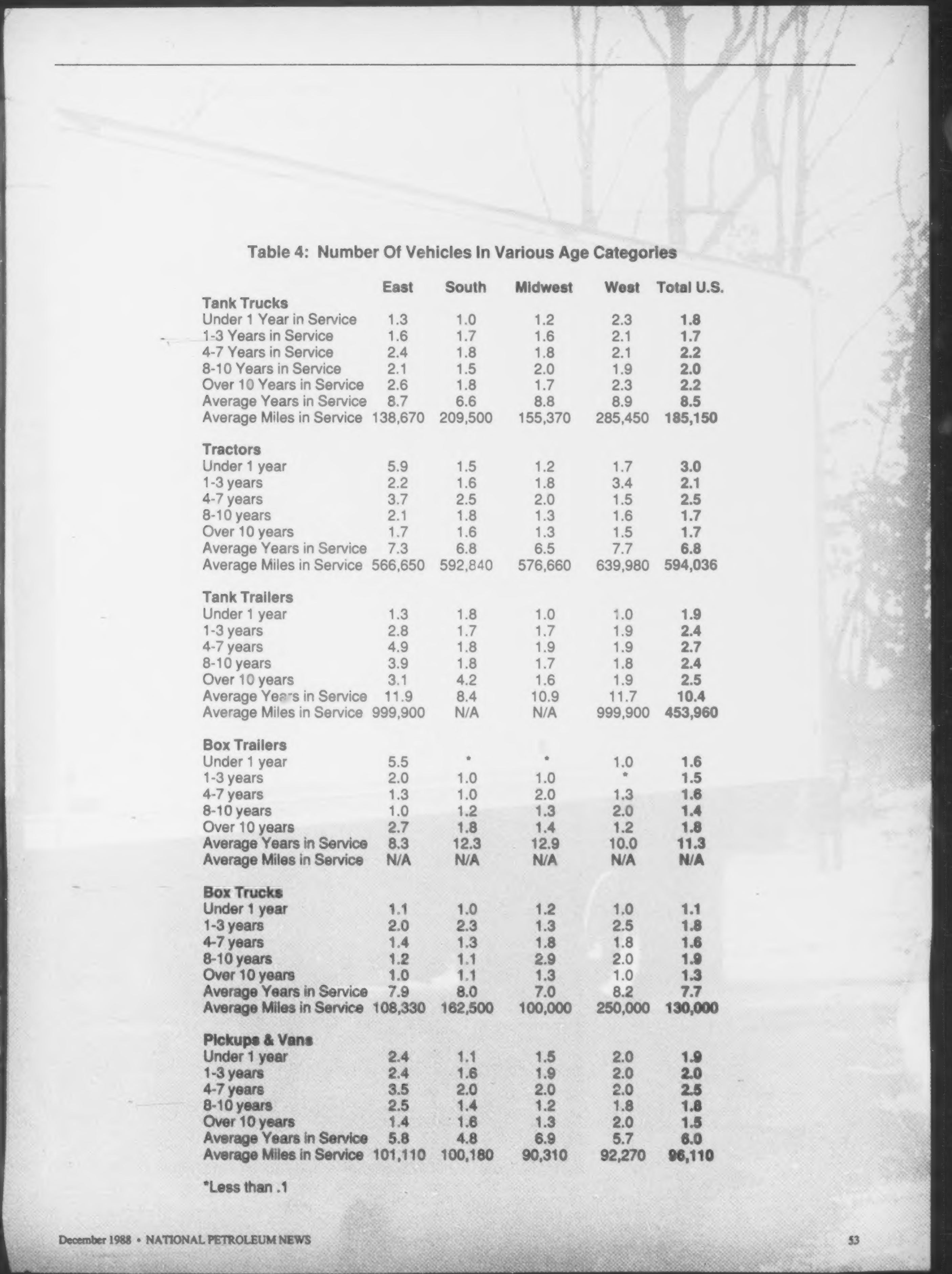


Table 4: Number Of Vehicles In Various Age Categories

	East	South	Midwest	West	Total U.S.
Tank Trucks					
Under 1 Year in Service	1.3	1.0	1.2	2.3	**1.8**
1-3 Years in Service	1.6	1.7	1.6	2.1	**1.7**
4-7 Years in Service	2.4	1.8	1.8	2.1	**2.2**
8-10 Years in Service	2.1	1.5	2.0	1.9	**2.0**
Over 10 Years in Service	2.6	1.8	1.7	2.3	**2.2**
Average Years in Service	8.7	6.6	8.8	8.9	**8.5**
Average Miles in Service	138,670	209,500	155,370	285,450	**185,150**
Tractors					
Under 1 year	5.9	1.5	1.2	1.7	**3.0**
1-3 years	2.2	1.6	1.8	3.4	**2.1**
4-7 years	3.7	2.5	2.0	1.5	**2.5**
8-10 years	2.1	1.8	1.3	1.6	**1.7**
Over 10 years	1.7	1.6	1.3	1.5	**1.7**
Average Years in Service	7.3	6.8	6.5	7.7	**6.8**
Average Miles in Service	566,650	592,840	576,660	639,980	**594,036**
Tank Trailers					
Under 1 year	1.3	1.8	1.0	1.0	**1.9**
1-3 years	2.8	1.7	1.7	1.9	**2.4**
4-7 years	4.9	1.8	1.9	1.9	**2.7**
8-10 years	3.9	1.8	1.7	1.8	**2.4**
Over 10 years	3.1	4.2	1.6	1.9	**2.5**
Average Years in Service	11.9	8.4	10.9	11.7	**10.4**
Average Miles in Service	999,900	N/A	N/A	999,900	**453,960**
Box Trailers					
Under 1 year	5.5	*	*	1.0	**1.6**
1-3 years	2.0	1.0	1.0	*	**1.5**
4-7 years	1.3	1.0	2.0	1.3	**1.6**
8-10 years	1.0	1.2	1.3	2.0	**1.4**
Over 10 years	2.7	1.8	1.4	1.2	**1.8**
Average Years in Service	8.3	12.3	12.9	10.0	**11.3**
Average Miles in Service	N/A	N/A	N/A	N/A	**N/A**
Box Trucks					
Under 1 year	1.1	1.0	1.2	1.0	**1.1**
1-3 years	2.0	2.3	1.3	2.5	**1.8**
4-7 years	1.4	1.3	1.8	1.8	**1.6**
8-10 years	1.2	1.1	2.9	2.0	**1.9**
Over 10 years	1.0	1.1	1.3	1.0	**1.3**
Average Years in Service	7.9	8.0	7.0	8.2	**7.7**
Average Miles in Service	108,330	162,500	100,000	250,000	**130,000**
Pickups & Vans					
Under 1 year	2.4	1.1	1.5	2.0	**1.9**
1-3 years	2.4	1.6	1.9	2.0	**2.0**
4-7 years	3.5	2.0	2.0	2.0	**2.5**
8-10 years	2.5	1.4	1.2	1.8	**1.8**
Over 10 years	1.4	1.6	1.3	2.0	**1.5**
Average Years in Service	5.8	4.8	6.9	5.7	**6.0**
Average Miles in Service	101,110	100,180	90,310	92,270	**96,110**

*Less than .1

operates 3.6 tank trucks, 3.2 tractors and a like number of tank and box trailers, 1.9 box trucks and 3.6 pickups and vans. The survey found that Eastern fleets average more owned and leased vehicles in most categories than their counterparts in other regions. This reflects, at least in part, the higher percentage (78.8%) of marketer-operated fleets in that region.

What this survey data also indicates is that the average marketer has shifted away from single or limited product lines (motor fuel, for example) to a marketing strategy pegged to several different profit streams.

To implement that diversified marketing strategy, the data suggests that a typical jobber might own and operate several 3,000-gal. tank trucks for home delivery of heating oil, or motor fuel to commercial, farm and small station accounts. Add to this three or four tractor/trailers for motor fuel delivery to larger stations, several platform/box trucks for transporting tires, batteries, accessories, motor oil and other products, plus three to four pickups or vans for service and miscellaneous jobs and the result is a fleet profile designed for diversified profit ventures.

While leasing of equipment is frequently touted as a way to avoid tying up capital, marketers prefer owning the rigs they operate by an overwhelming margin (Table 3). Tank trucks are leased the most, but even in that category the percentage of leasing (12.8%) vs. owning (87.2%) is modest.

It's no secret that diesel-powered trucks have been gaining in popularity and the Hunter survey bears this out. According to marketers responding to the survey, more than 85% of their tank trucks are now diesels, while virtually all of the tractors (96.9%) they operate also use diesel fuel.

Age and mileage

Marketers expect to get a lot of service out of their vehicles, and particularly their petroleum hauling rigs, the study reports. Table 4 provides a detailed breakdown of the number of vehicles in various age categories along with the average miles in service by type of vehicle.

By a wide margin, tractors and tank trailers travel more miles, on average, than any other type of truck equipment. Mileage figures on box trailers undoubtedly are high, too, in view of the average life cycle of 11.3 years, but insufficient data was received on those units to determine their miles of service.

The workhorse hauling demands on tractors accounts for their relatively shorter average replacement cycle of 6.8 years. The average tractor racks up almost 600,000 miles of service, or about 87,000 miles a year, before it is replaced.

By comparison, tank trucks last 8.5 years, but average only 22,000 miles per year, reflecting their typically short-haul responsibilities. However, the average tank truck operated by a Western region marketer registers twice the annual mileage (32,000 miles) that a similar rig in the densely-populated East does.

Box trucks are replaced every 7.7 years and cover an average of less than 17,000 miles per year. Vans and pickups average only 16,000 miles a year and are normally traded in after less than 100,000 miles of service.

A few individual marketers get remarkable service life out of their hauling equipment. The transport rigs at Truman Arnold Co's., Texarkana, Texas, operate 18-20 hours per day and travel close to 200,000 miles per year before being traded in every fourth year or so [*NPN*—Nov. '87, p50]. A major reason for this extended service is a full-service maintenance shop which keeps the vehicles in top condition, according to Arnold's transportation chief, Frank Caudle.

More than half of the respondents to the Hunter survey reported they had in-house maintenance facilities and employed full-time mechanics. Over 70% of Western fleets have full-time mechanics, compared to 57.9% of the Eastern operations.

Driver comfort

In the specification of truck options, driver comfort was cited as the top priority by most marketers. Among the options marketers said they planned to acquire with their next truck purchases, air conditioning was the number one choice, closely followed by custom driver seats. Control devices such as recording tachometers and ticket printer meters were much further down the list of their choices of options.

As for tank preferences, the survey showed that marketers choose aluminum over steel by a 60-40 ratio. The respondents also said they prefer oval over flat sided tanks by a similar margin.

Marketers like the bigger class trucks, too, the survey found. Class 8 (33,000 lbs. GVW and up) tractors accounted for 42% of the fleet vehicles in that category. Even among tank trucks, Class 8 trucks hold a slight edge over Class 6 and 7 vehicles.

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The average petroleum marketer operates 3.6 tank trucks, serving a diversity of home heating oil, commercial, farm and small station accounts.

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Outlook '89: OPEC Remains The Big Factor

Car Service Malls Are A Developing Trend

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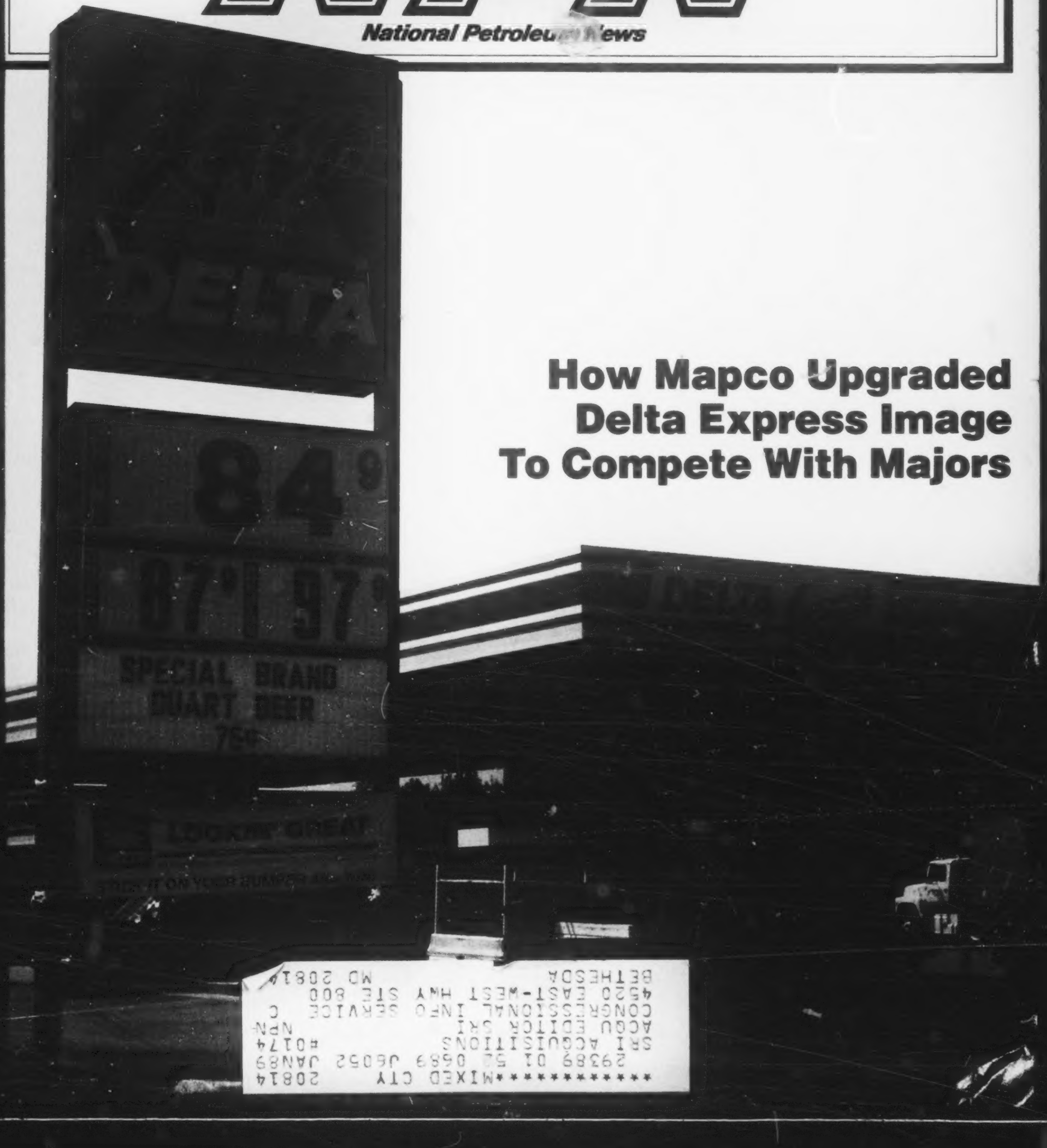
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Editor's Viewpoint

It is a habit of legislators without the desire, discipline or brains to constrain government spending, or the stomach and good conscience to level with their constituents, to raise taxes other than individual income taxes. These other tax hikes are easier to rationalize with verbal and financial acrobatics and taxpayers usually just resign themselves to it and eventually forget the whole thing. It works. How many people realize how much of the money they spend goes to taxes? Crafty politicians count on that.

The "sin" taxes on cigarettes and alcohol are regular targets for such increases. Gasoline taxes are an equally common scapegoat. And, as our outgoing president might say: "There they go again." Renewed talk about raising the federal gasoline tax 25¢ or 50¢ is gaining momentum.

What's most aggravating and infuriating about a gasoline tax hike is the deceit and hypocrisy of the legislators supporting it. What Congressman would vote outright for a measure that stymies economic growth, increases unemployment and boosts inflation? What Congressman—particularly those who constantly wring their hands about the poor—would vote outright for a regressive tax which is plainly a greater financial burden to the poor?

Yet, that is what higher gasoline taxes would mean. Studies by both government and private organizations have pointed out the detrimental impact of a gasoline tax increase. A recent analysis by Whatron Econometrics, for instance, indicates that just a 10¢ a gal. increase would cut GNP by $10-billion this year, raise unemployemnt by 80,000 this year and 180,000 next year, drop personal savings by 3%, boost the consumer price index 0.3%, reduce auto production 1.3%, housing construction 0.9% and petroleum refinery production by 1.2%. And—most ridiculous and counterproductive of all—it would reduce overall tax revenues by about $1-billion annually.

And what's the justification for a gasoline tax that would cause this? Supporters say it will reduce the federal budget deficit. Read my lips. My short response to that can't be printed, but the first word is "Shove" and the last word refers to a part of the human anatomy located at the rear of the body just above the thighs. Give government more money and it will do what it has always done—spend it, usually in the most wasteful manner.

Anyone who believes a gasoline tax increase will be used to cut the federal deficit should contact me immediately because the Brooklyn Bridge is again up for sale and I'm the chief sales agent. *—Frank M. Victoria*

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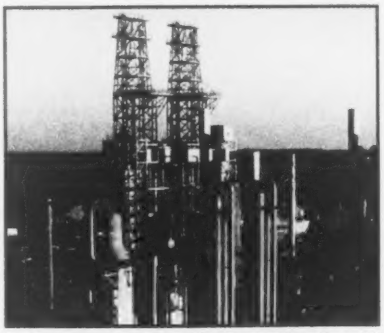
Mapco Petroleum, the heavy-hitting southwestern independent, is pushing a $150-million upgrade of its convenience stores to capture a bigger share of its 10 state market and improve refinery throughput and profitability. **Page 34**

Automotive service centers, bringing several car specialist facilities together into one shopping mall-type matrix, are described as the "hottest new development concept" since neighborhood shopping centers. Petroleum marketers could play a role in this new marketing trend. **Page 40**



Industry outlook '89: The year ahead could produce smooth sailing or rough waters for petroleum marketers. Much depends on whether OPEC holds to its November agreement to curtail production and shore up prices. **Page 46**

• AHEAD OF THE NEWS

Big Marketing Expenditures Planned—Capital spending on oil marketing facilities isn't flagging at all, as was feared last summer. Back-to-back $5.1-billion spending programs are scheduled for both 1989 and 1990, according to McGraw-Hill Corp.'s Data Research Inc. subsidiary.

This is the first time that marketing has penetrated the $5-billion-plus stratosphere and reflects the increasingly tough competition for gasoline volume as well as the spiraling costs for underground storage tank replacement/rehabilitation programs and other environmental factors.

Marketing investments were $100-million more in 1988 than had been forecasted last summer and the 1989-90 projections of $5.1-billion seem almost unbelievable. Capital spending programs for the industry as a whole also broke into new ground for 1990—more than $50-billion, an increase of 12.8% over 1989.

$5-Billion Years For Marketing

	(million dollars)	% Chng. vs prev. year)
MARKETING		
1990 (Planned)	$5,146	0.2%
1989 (Planned)	5,137	4.9
1988 (Estimated)	4,896	12.5
1987 (Actual)	4,352	23.4
TRANSPORTATION (*)		
1990 (Planned)	2,868	(0.4)
1989 (Planned)	2,878	17.6
1988 (Estimated)	2,447	35.6
1987 (Actual)	1,805	(52.7)
EXPLORATION AND PRODUCTION		
1990 (Planned)	32,474	21.1
1989 (Planned)	26,813	4.0
1988 (Estimated)	25,780	21.6
1987 (Actual)	21,199	7.2
REFINING		
1990 (Planned)	2,517	8.2
1989 (Planned)	2,326	6.1
1988 (Estimated)	2,193	15.0
1987 (Actual)	1,907	(23.0)
OTHER (**)		
1990 (Planned)	5,638	0.3
1989 (Planned)	5,622	11.9
1988 (Estimated)	5,025	17.7
1987 (Actual)	4,269	4.8
PETROCHEMICALS		
1990 (Planned)	1,753	(7.4)
1989 (Planned)	1,893	25.5
1988 (Estimated)	1,509	49.1
1987 (Actual)	1,012	17.6
U.S. TOTAL		
1990 (Planned)	50,396	12.8
1989 (Planned)	44,669	6.7
1988 (Estimated)	41,849	21.1
1987 (Actual)	34,544	0.5

(*) Excludes gas pipelines; (**) includes oil company coal mining.
Source: Data Research Inc./McGraw-Hill Corp. Thirty-Eighth survey of Preliminary Plans for New Plants and Equipment. 1988-1990 data collected in October and published Nov. 30, 1988.

Clark Oil-Horsham Deal Could Fizzle—Technically, Horsham Corp. of Toronto, Ont., is the new owner of Clark Oil & Refining Co. and its Midwestern service stations, but there's a legal cloud over the deal that might wash it out in early 1989. Getty Petroleum Co., a big eastern independent, filed an appeal against the bankruptcy court decision which rejected its bid of $553.5-million for Clark [*NPN*—Nov. '88, p28] and approved Horsham's instead. Clark assets include two 130,000 b/d Illinois refineries; 15 terminals and certain pipeline interests; and 1,000 service stations. Horsham's partnership includes Sam Goldstein and Tony Novelly, president and vice president, respectively, of bankrupt Apex Oil Co., St. Louis, Mo., which owns Clark outright. Getty's appeal maintains that its bid was $50-million better than that of Horsham. Getty officials say they expect a hearing to be held early this year and "if we win, then Apex, Clark and Horsham will have to unwind things, that's all."

Equipment Makers Foresee Bland Year—Neither optimistic nor pessimistic, the manufacturers who make water heaters and central heating equipment anticipate little change in direction this year. Here's how the members of Gas Appliance Manufacturers Assn. view the next 12 months: Water heaters: gas, up 1.3%; electric, up 1.5%; central heating: gas furnaces, down 3.5%; oil furnaces, down 3.5%; and electric furnaces, down 2.2%. GAMA does not make an estimate on oil-fired water heaters but these manufacturers also expect little change in 1989.

Amoco Jobbers To Use Thier Own C-Store Logos—Amoco jobbers can now display their own C-store logos at Amoco branded stations, the company announced recently, as long as a minimum of five stations have a registered trademark and the stations have $1.2-million in annual ancillary sales. Amoco jobbers were previously required to designate their C-stores as Amoco Food Shops in compliance with Amoco's image standards, but the company now says jobber C-store logos may have significant name recognition within the jobber's local marketing territory which could compliment the sale of Amoco gasoline and other sales.

Oil Imports To Swell—Growing domestic demand for oil and lower U.S. production will increase dependency on imports from 27% in 1985 and 37% in 1988 to 50% in 1994-'95, says John Lichtblau, president, Petroleum Industry Research Foundation. The dependency would have more effect economically than it would on the national security. Speaking at the recent American Petroleum Institute meeting, Lichtblau noted all 48 continental states have decreasing production, and Alaska's output will decline in 1990. Lichtblau forecasts a 1-1.5% a year growth in crude demand into the mid-1990s. The predicted 50% import plateau would be reached gradually and be something the country would "probably learn to live with," said Lichtblau. Arresting the import rate can be accomplished through "slow down precautions" he said, adding that imports will get more attention in 1989 than in the previous three years.

• TRENDS

C-Stores Going Global, Spreads To Far East

What was almost entirely an American phenomenon—the gasoline station and convenience store combination—is going international. C-store stations are now the dominant mode of motor-fuel retailing in the United States, but only scratched the surface abroad. There are some in Europe, notably England, but otherwise the concept is relatively untried in other parts of the world. The concept has been absent in the Far East—until now.

Kyodo Oil of Tokyo, one of the biggest oil companies in Japan, has signed a long-term licensing agreement to use Arco's am/pm mini markets at 500 outlets in Japan. It's the first time gasoline stations have been tied in with C-stores in that country, the first agreement between a Japanese oil company and a U.S. oil company/C-store chain, and the first time a Japanese oil company will be operating convenience stores.

Kyodo, a refiner/marketer with more than 6,400 outlets, is planning to convert selected stations to am/pm mini markets and also build new facilities. The first one is scheduled to open in Tokyo next spring. There is no petroleum connection in the agreement. The Japanese oil company will continue to run the gasoline business under its Kyodo brand.

Kazushige Nagashima, Kyodo executive vice president, says the company has been studying the C-store business throughout the world for three years and decided that Arco's am/pm is "by far the best system."

Kyodo's reason for entering the C-store business is similar to that of many oil companies in the United States. Skyrocketing real estate prices in Japan have made it necessary for them to obtain greater revenues from station properties. This is one of the major reasons Arco embarked on its am/pm venture in 1978.

Ancillary businesses for gasoline stations are not new, of course. Automotive service was the dominant one in the United States for over half a century, but C-stores emerged in significant numbers in the late 1960s and early 1970s to become the dominant mode of operation.

What Kyodo evidently understands is that C-stores have proved to be a valuable revenue producer in their own right while helping the gasoline operation to develop higher volume in a very competitive marketplace. In the hands of skillful gasoline marketers, certainly including Arco, the C-store/gasoline combination has been elevated to state-of-the-art retail marketing.

Along with C-store chains, oil jobbers and independent gasoline marketers pioneered the gasoline/C-store business for many years, but major oil companies have become believers and made the plunge. They have the capital, and probably more importantly, the key locations.

Oil companies can expand significantly in the market with their own existing properties; but C-store chains can expand only through acquiring new locations, at a very high and rising cost. (For a report on how the oil companies are squeezing conventional C-store chains, see [*NPN*—Sept. 88, p40].

Edward G. Reilly, senior vice president of marketing for Arco Products Co., says, "This agreement represents recognition that the am/pm concept can be adapted to markets around the world and that Arco has the expertise to make it work outside the United States."

In keeping with am/pm's own evolution, which now emphasizes fast food more than grocery items, Kyodo's mini markets will feature a combination of Western-style fast foods including hamburgers, hot dogs, yogurt and soft drinks as well as Japanese-style "box lunches" with such foods as sushi and oden.

Kyodo's am/pm's will range from 800-sq.ft. for remodeled locations to 1,500-sq.ft. for newly constructed units. Arco's American am/pm's are from 1,500-2,500-sq.ft.

Arco will appoint a manager to work with Kyodo in Japan, while Kyodo will send a training crew to Los Angeles to participate in operating an am/pm mini market in Arco's employee orientation program.

Kyodo and Arco got together, in part, through Pacific Partners Inc., Los Angeles, an investment and consulting company that served both firms, who saw similar problems, pointing to similar solutions.

—Mark Emond

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

OCTOBER	Gasoline (all types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$0.975	$0.910	$0.956	$1.119
Regions:				
Northeast	1.002	.917	.959	1.146
North Central	.958	.905	.951	1.104
South	.972	.899	.948	1.107
West	.973	.921	.967	1.116

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (add 000 bbl.)

	12/2/88	12/4/87
Gasoline (total)	219,535	225,310
Gasoline (unleaded)*	143,770	134,947
Jet Kerosine	38,458	43,370
Distillates	128,882	128,628
Residual	42,785	46,575

** Included in gasoline total*
Source: American Petroleum Institute

Industry Outlook '89: OPEC Actions Will Have Most Impact On Oil Marketing

With a new and untested administration taking over in Washington, and with enough domestic problems out there already to insure oil marketers of many sleepless nights to come, this should not be the year in which a fractious oil cartel can come along and mess up things like never before.

Yet, this is exactly what's happening and is an indication of what's in store for the domestic oil industry in the challenging new year. By December, this year may be looked back upon as the year of the bullet—bullet-biting, that is. Conceivably, such hard-nosed actions could produce a rash of shutdowns and business collapses in 1989.

It's fair to say that 1989 could be one of the wildest, most traumatic in history. On the other hand, it's also reasonable to forecast a blandish 12-month period for 1989—with the specter of a replay of 1986 haunting one and all in the background.

Which scenario comes to pass is in the laps of the gods right now. Just about everything hinges on the individual members of the Organization of Petroleum Exporting Countries in the first six months of the new year.

By J. Richard Shaner
Executive Editor

Prodded by Saudi Arabia, which threatened to flood the world with enough crude to drive prices down to $5 bbl., the OPEC cartel spent 12 contentious days wrestling with Iran-Iraq parity demands and a production ceiling that would enable global prices to float back up to $18 a bbl. by spring.

A fragile agreement was achieved. Iran finally conceded on the parity discord and the group set a production quota of 18.5-million b/d effective January 1. This was 4.5-million b/d below the fourth-quarter level of 23-million b/d which had threatened to overwhelm the world and destroy the current price structure in the process.

But no matter what was said or done in Vienna in November, the real key is the follow-up; in other words, are the OPEC member commitments for real or are they merely another round of lip service and double dealing? That has been OPEC's problem in recent years—sub-rosa discounts and production schedules that violated quotas and cartel agreements. This is just polite terminology for saying cheating and chiseling, but that's exactly what the OPEC members have been doing to each other in recent years.

Saudi track record

It must be remembered that OPEC—and Saudi Arabia, in particular—triggered the 1986 collapse with more crude oil than the world could ever hope to absorb in the face of declining demand and long-term projections for more of the same.

That kind of a price collapse could happen again in 1989. As a matter of fact, Saudi Arabia oil executives at Vienna said they would have no compunction about pumping as much as 10-million b/d of crude. Producing that much product would be more than twice its OPEC quota and almost double what it exported this past November—when there already was 5-million b/d of surplus floating around and looking for

1989 Forecast: Deja Vu And Then Some

By The Quarters

	1989 Projections				1988 History			
DEMAND (million b/d)	1Q	2Q	3Q	4Q*	1Q	2Q	3Q	4Q*
Motor Gasoline	7.09	7.64	7.62	7.42	6.98	7.49	7.54	7.35
Leaded	1.30	1.19	1.05	0.95	1.38	1.46	1.33	1.41
Unleaded	5.79	6.45	6.57	6.47	5.60	6.04	6.21	5.94
% Unleaded	82%	84%	86%	87%	80%	81%	82%	81%
Distillates	3.53	3.04	2.89	3.31	3.52	2.81	2.76	3.26
Residual	1.41	1.17	1.05	1.15	1.54	1.10	1.15	1.20
Total U.S. (a)	17.46	16.96	17.03	17.41	17.44	16.53	16.79	17.26
PRICES (per gal.) (b)								
Motor Gasoline (c)	.89	.93	.99	.96	.93	.96	.99	.95
No. 2 Diesel Oil	.89	.93	.92	.91	.93	.93	.90	.87
No. 2 Heating Oil								
Wholesale	.48	.47	.47	.48	.50	.49	.45	.43
Retail	.79	.78	.75	.80	.84	.82	.75	.75
Residual (d)	.36	.33	.34	.36	.35	.33	.32	.32

Annualized Comparisons

	Full Year			Percent Change		
DEMAND (million b/d)	1989	1988	1987	'89/'88	'88/'87	'87/'86
Motor Gasoline	7.44	7.34	7.21	1.4%	1.8%	2.6%
Leaded	1.12	1.39	1.74	(19)	(20)	(21)
Unleaded	6.32	5.95	5.47	6.2	8.8	12.0
% Unleaded	85%	81%	76%	—	—	—
Distillates	3.19	3.09	2.98	3.2	3.7	2.4
Residual	1.20	1.25	1.26	(0.4)	(0.8)	(11.3)
Total U.S. (a)	17.21	17.01	16.67	1.2	2.0	2.4
PRICES (per gal.) (b)						
Motor Gasoline (c)	.94	.96	.96	(2.1)	0.0	3.2
No. 2 Diesel Oil	.92	.91	.93	1.0	(2.2)	4.5
No. 2 Heating Oil						
Wholesale	.47	.47	.53	—	(11.3)	6.1
Retail	.78	.79	.80	(1.3)	(1.3)	(4.8)
Residual	.35	.33	.42	6.1	(21.4)	(23.6)

*Fourth quarters are estimates; (a) Includes all other oils; (b) Includes federal and state taxes on all products except heating oil, which is not taxed; (c) Average for all grades and services; (d) average for all grades of sulfur.

Source: Energy Information Administration, Short-Term Energy Outlook, dated October but published in November, 1988.

marketplaces.

Repercussions would be felt not only in the United States but in virtually every country on the face of the earth.

Outside the Middle East, there are probably no other producing countries in the world that could match the $5 a bbl. figure if it went that low.

A price of $5 a bbl. would raise havoc in the United States, where last year's short-term $8 a bbl. for Texas intermediate panicked most of the industry. In the Southwest, banks, savings and loan associations, real estate operators and local governments would take another merciless beating as they did in 1986. Exploration and drilling would come to an absolute standstill.

Cheap crude oil prices would probably inspire greater product demand, especially gasoline.

But the cheap retails would also depress—and all but eliminate, in some cases—margin levels that would warrant staying in business. The fallout here could be a rash of failures and shutdowns.

Forecasting problems

Because the whole thing is so tenuous, it's almost impossible to make projections of more than a few weeks at a time. Most economists are skating fast and furiously in their 1989 predictions, hedging them with so many ifs, ands and buts that they are self-defeating. At the November American Petroleum Institute meeting in New York, four economists took stabs at guessing what the future has in store for oil marketers. While interesting, their predictions were not sufficiently conclusive to base plans on, sort of another Mexican standoff in the long run.

Of interest was one comment that as much as 200-million bbl. of oil may be floating around now, hoping for a demand rise in 1989. Another economist noted that the demand increase in 1989 will only be about 1-1.25%. One economist said he thought the chances for $10-$15 a bbl. for crude oil in 1989 were about 60%. On the high side, the chances of $15-$18 a bbl. crude were 25% and on the low side, about 15% for $7-$10 a bbl.

It was repeated several times at this session that the global surpluses already in existence simply aren't going to fade away. One economist noted that OPEC has already borrowed deep into the 1989 production budget by overproducing in the last half of 1988. That, he said, makes OPEC's production quota balancing act all the more difficult and seems to insure a continuation of the current disagreements for several years.

U.S. projections

The federal government's Dept. of Energy, in its fall-winter short-term forecast, qualified itself by using three scenarios—one for $13 a bbl. crude, another for $18 a bbl. crude and a third, the intermediate or base projection, $15 a bbl. crude.

Using the intermediate projection, the government said demand in 1989 might rise 1.2% with gasoline up 1.4% and distillates 3.2%. That was about the same as it said last summer in its mid-term forecast [*NPN*—Oct. '88, p29].

In reconsidering their summertime projections, the federal experts cut back somewhat sharply on price expectations (see forecast boxscore). For example, motor gasoline was lowered 2¢-3¢ a gal.; diesel fuel, 1¢-3¢; wholesale No. 2, 4¢-5¢ a gal.; and retail, 2¢-3¢ a gal., in comparison with the July projections.

The best gasoline price that the government experts foresaw for 1989 is expected to come in the summer months. The average price for all grades and services is expected to be 99¢ a gal., which is what it was at the same time last year. With premium unleaded around $1.05 a gal. in July and August, this would mean that unleaded midgrade would be around 94¢ while unleaded regular would have trouble making 90¢.

Domestic problems

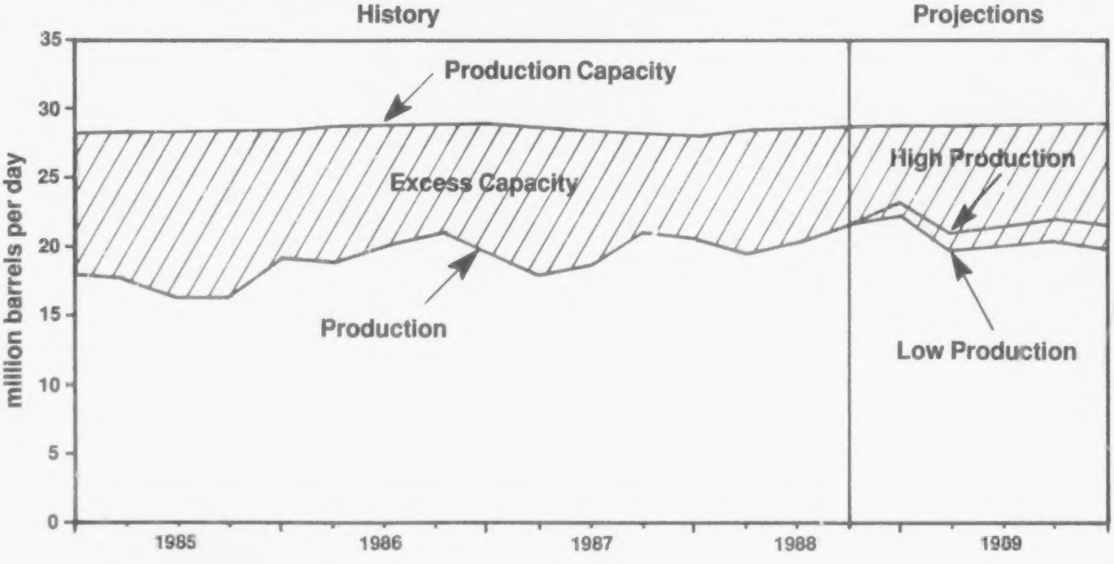
Technically, President-elect George Bush is an oil man, having been in the production business some years ago. But the industry is not at all convinced that he's going to be open-handed and open-hearted with oil and its issues.

He's committed to follow in the footsteps of President Ronald Reagan and this would mean no change in the administration's attitude on Occupational Safety and Health changes, Environmental Protection Agency regulations, particularly the underground storage tank requirements.

Industry people are concerned about the probability that motor fuel taxes will be increased in 1989-'90 as a means of lopping some of the billions of dollars in federal deficits. Bush, of course, is pledged unequivocally to "no increase in taxes" during his stewardship. But the general expectation is that he will use equivocating language, such as Reagan's "revenue enhancer" to make his end run while technically keeping his promise.

At both the API and Society of Independent Gasoline Marketers of America meeting in New York in November, the subject of gasoline tax increases popped up frequently. Some people talked about the possibility of 25¢ a gal. more, others 50¢. It was noted too that gasoline taxes overseas are measured in dollars per gal., not cents; thus, the 25¢ and 50¢ figures raised no fuss, fury or prolonged discussion. There was just an

OPEC Oil Production And Production Capacity



Note: OPEC production includes crude oil, natural gas liquids and refinery gain.
Sources: *History:* Energy Information Administration, Office of Energy Markets and End Use, International and Contingency Information Division. *Projections:* Table 2.

uncomfortable feeling that it's going to happen and that maybe damage control rather than stiff resistance might be the right approach to consider.

Among the industry spokesmen who assailed the idea of a motor fuel tax increase were Richard Morrow, chairman of Amoco Corp. and chairman of API; and Charles J. DiBona, president of API. Both described it as the worst possible way to go.

Said DiBona, both in open meetings and in an API "White Paper" that was distributed at the end of the meeting: "Several studies have shown that such a tax increase would have a direct, negative impact on the growth of the economy and inflation." He added that such a measure "would only reduce the deficit about a third of the amount of money that is collected. It is the single most regressive form of taxation because it hurts the lower income people and would have severe regional effects."

Import taxes

There was some talk here and there of a possible import tax but this subject did not seem to cause concern.

One surprising thing that Morrow did say about imports, however, was an offhand comment to the effect that U.S. dependency on them might reach as much as "two-thirds of our consumption by the year 2000." Most industry figures have talked about "maybe" 50% by the mid to late '90s but this is the first-time usage of a 65% concept by a high-ranking industry executive.

DiBona's "White Paper" also delved deeply into the imports dilemma. He said:

"The point is not whether Middle Eastern OPEC nations will cut off supply but simply that they can. If rising demand or a supply interruption eliminates the glut, any number of unpredictable developments around the Persian Gulf could directly, swiftly and critically affect the United States."

DiBona proposed a 10-point program for Congress and the Bush administration, including:

- Eliminate price controls on natural gas.
- Continue to fill the Strategic Petroleum Reserve.
- Encourage conservation while simultaneously encouraging expanded use of all domestic energy resources, such as coal, nuclear power, etc. He urged use of alcohols but advised against mandating specific fuels or blends.
- Open more federal lands for petroleum exploration while achieving a proper balance between environmental protection and petroleum usage.

Reagan Farewell: Oil Better Off Now Than Eight Years Ago

In a salute to its role in history, the Reagan administration says the federal government now has a new energy security foundation "from which we can move forward into the 1990s and the 21st century."

Never again, said John Herrington, the retiring secretary of energy, in a lengthy review of the administration's eight-year span in office, "will the United States return to where it was 15 years ago at the outset of the first energy crisis."

In addition, he said, America is a fundamentally different nation today in terms of energy security than it was a mere eight years ago.

Recapping, he said:

"Federal price and allocations on oil, the Windfall Profit Tax, and other disincentives to exploration and production of domestic oil have been eliminated while key tax incentives have been preserved. Since 1980, our overall energy efficiency has improved so much that we are producing 21% more goods and services with less than a 1% increase in energy use."

He said Americans are enjoying the benefits of low-cost energy, with the real price of gasoline down almost 50% since 1981. He added:

"We use little more energy in the United States than we did in 1973, though the population has grown by [illegible]4-million, there are 20-million more homes to heat and cool, 50-million more vehicles are on the road, and the gross national product is 40% larger than it was in 1980."

He also said that "while we have reason for legitimate concern over the viability of our domestic oil industry, the nation's energy supplies are more diversified than ever and our reliance on insecure sources of imported oil has been sharply reduced. Thanks to our strengthened international alliances and refortified strategic reserves, the United States is better prepared than ever for an oil supply interruption."

Herrington said the following are among the conclusions that can be drawn about the government's energy policy:

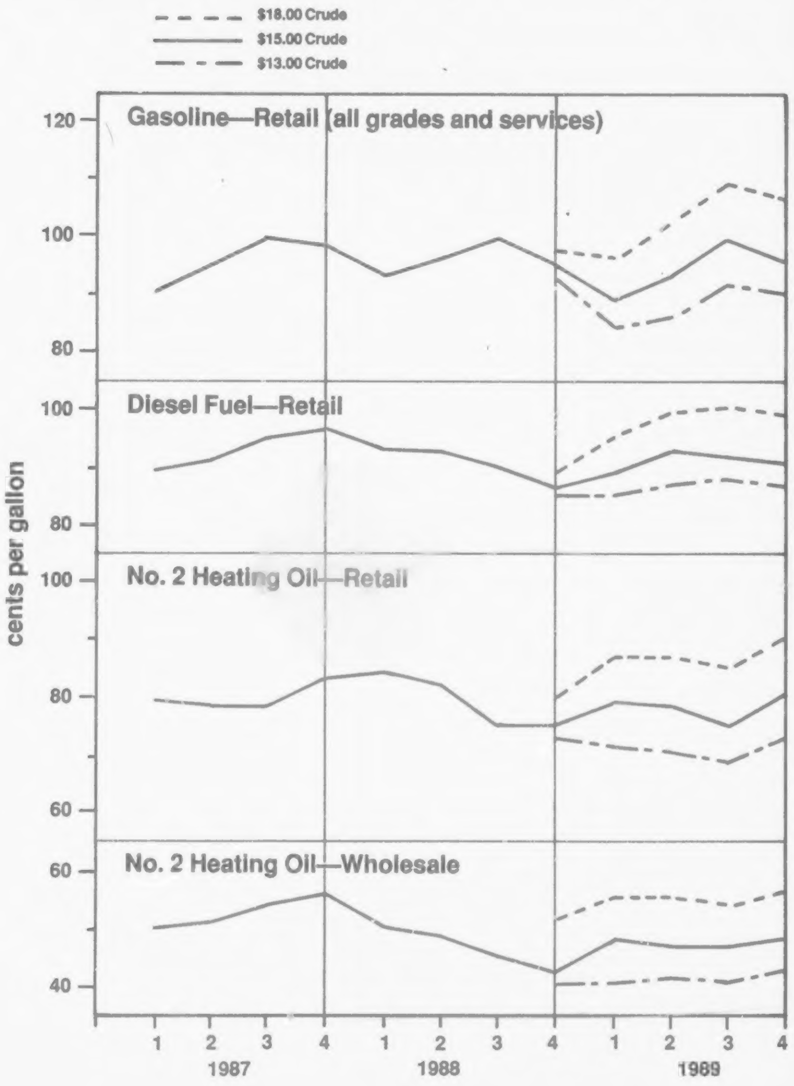
(1.) It is unlikely that the United States will ever return to where it was 15 years ago at the outset of the first energy crisis. Although the nation's "conservation ethic" is being severely tested in the face of lower energy costs, Americans have proven through most of the 1980s that lower prices do not necessarily mean a return to the energy consumption habits of the 1970s.

(2.) The dynamics of the world energy market have changed significantly. World oil demand has remained relatively level over the past 15 years. Non-OPEC production is up markedly—with an aggregate increase of 12-million b/d since 1973; and, as a consequence, OPEC's market share has been cut nearly in half. While OPEC will continue to have tremendous influence on prices, its member nations are heavily dependent on cash from oil and it will continue to have difficulty holding to agreed quotas. A large oil surplus exists worldwide and is likely to continue over the short- and medium-term, particularly with the prospects for the settlement of the Iran-Iraq War, which holds the potential of bringing another 2-3-million b/d onto the market.

(3.) On the positive side, while the industry has just gone through an extremely difficult period, it is more free of the counterproductive regulatory restraints. However, the price collapse of 1986 has tested the industry's infrastructure and the United States faces another sizeable production loss with the impending decline of production in Alaska's Prudhoe Bay oil fields. The Prudhoe Bay experience has shown that the environment and oil production can coexist successfully. To this end, exploration of our most promising prospects—such as the Coastal Plain of the Arctic National Wildlife Refuge—is imperative.

New techniques for recovering petroleum resources must be exploited. Sensible policies and incentives to encourage continued production of domestic oil in the lower 48 states continue to be critical. Regulatory changes are necessary if natural gas is going to achieve its still-enormous potential for displacing significant amounts of foreign oil. Equally important is the need to safeguard against possible supply interruptions by continuing our aggressive filiing of the Strategic Petroleum Reserve, promoting Middle East stability, and encouraging alternative supply routes that will reduce the strategic importance of the Strait of Hormuz (in the Persian Gulf area).

Bird's Eye View—Price Projections For Key Products



1989 projections are based on three scenerios—crude oil at $13.00 bbl., $15.00 bbl. and $18.00 bbl. The $15.00 bbl. projection is considered to be the most likely.

Source: Energy Information Administration, Short-Term Energy Outlook, October 1988.

- Avoid additional energy taxes while attacking the budget deficit by holding down spending programs and growth.

His is an ambitious program but similar proposals in the past have been ignored by Congress and the Reagan administration.

Several years ago, most of the petroleum industry was pretty well convinced that a major energy crisis was imminent. Except for the trauma of 1986, it appears to have escaped such a calamity so far. Depending on what OPEC does this winter, this could be the decisive year, however—the day of reckoning at long last.

It will be a highly competitive year no matter which way it goes.

Competition Up API Study Shows

An updated study by the American Petroleum Institute says concentration levels rose modestly in some segments of the industry in 1987 but that overall they were "still low relative to the historical peak in 1970."

The study says concentration levels in gasoline sales declined to near-record levels in 1987.

This is the ratio reported in the current study, which was issued at the API meeting in New York in November:

Motor Gasoline Sales
(percent of national market)

	1970	1980	1986	1987
4 Firms	30.7	28.5	29.5	28.9
8 Firms	54.6	49.5	49.6	48.7
15 Firms	74.9	66.3	66.4	65.0
20 Firms	80.0	72.1	70.5	70.2
30 Firms	NA	77.9	76.6	76.4

The API study quotes Lundberg Survey data to confirm that Shell Oil was the nation's biggest gasoline marketer in 1987 with 8.10% of the U.S. total. (It should be noted that the Lundberg figures differ from those compiled by NPN because the collection procedures are not the same. Lundberg uses data obtained from state tax collection offices and direct inquiry while NPN uses refinery sales figures published by the oil companies in their annual reports.)

Here are the top gasoline market share figures reported in the API study:

U.S. Motor Gasoline Sales
(000,000 gal.)

Company	Sales	Market share
Shell	9,074.7	8.10
Amoco	8,179.9	7.31
Exxon	7,608.7	6.80
Mobil	7,527.9	6.72
Chevron	7,232.2	6.46
Texaco	7,084.6	6.33
Unocal	4,118.9	3.68
BP America	3,717.2	3.32
Phillips	3,420.4	3.05
Arco	3,201.5	2.86
Sun	2,917.7	2.61
Marathon	2,720.2	2.43
Conoco	2,373.5	2.12
Ashland	1,898.5	1.70

Following are some other highlights of the API study, copies of which may be obtained from API headquarters:

Proven Oil Reserves: Top company: BP America, 8.34%; top four firms: 31.6%.

Oil Production: BP America, 8.51%; top four firms: 28.3%.

Refining Capacity: Chevron: 11.35%; top four firms: 32.2%

Refinery Runs: Chevron, 10.71%; top four firms: 32.6%.

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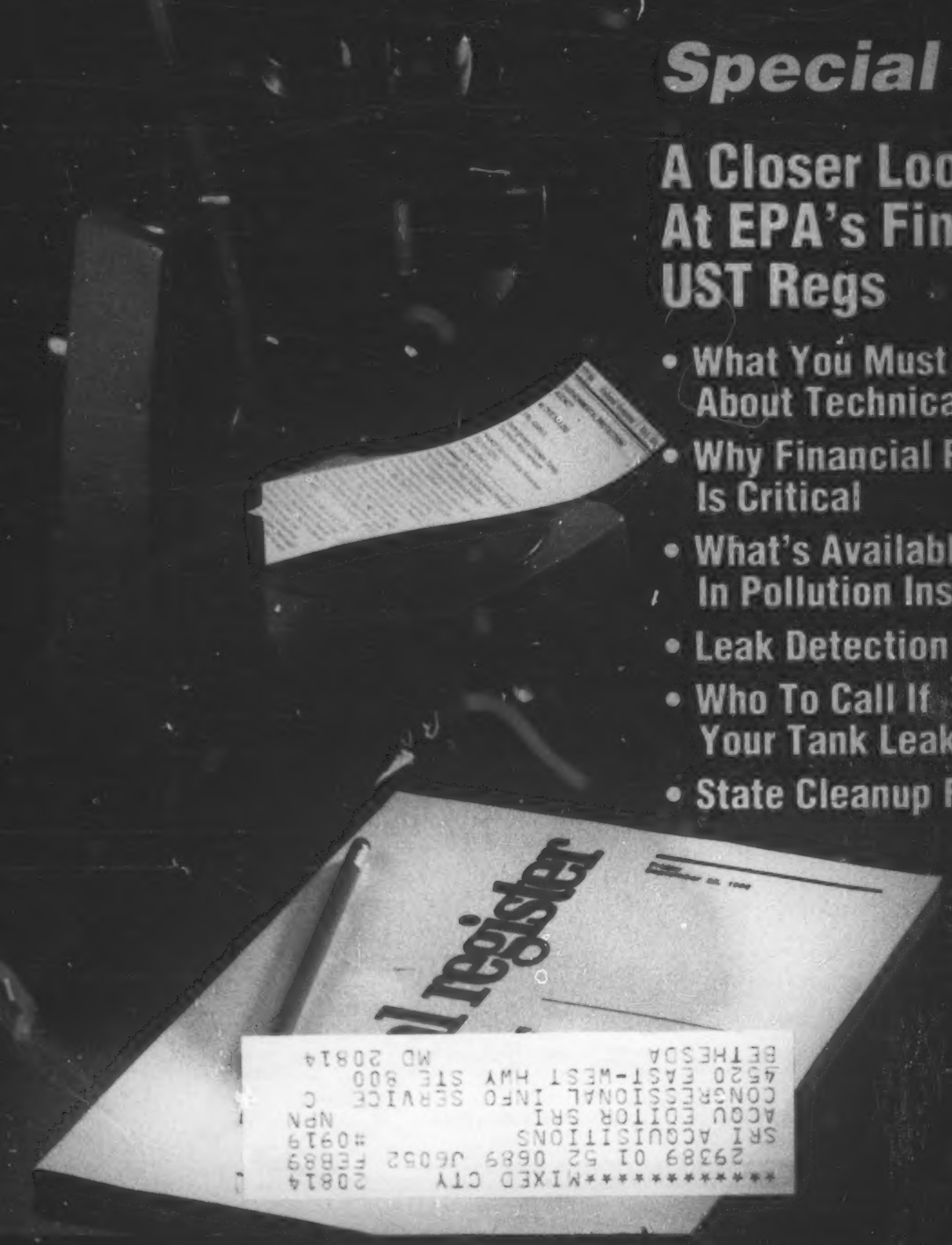

Special Report:

A Closer Look At EPA's Final UST Regs

- What You Must Know About Technical Regs
- Why Financial Responsibility Is Critical
- What's Available In Pollution Insurance
- Leak Detection Guide
- Who To Call If Your Tank Leaks
- State Cleanup Funds

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Editor's Viewpoint

This month's special report on the Environmental Protection Agency's final underground storage tank regulations underlines their complexity and makes obvious the problems and complications they will undoubtedly cause many marketers.

Few people in the industry doubt that the EPA did its best to minimize the impact of these regs on small and medium size businesses. Indications are, however, that the impact will nonetheless be severe. Many marketers apparently had their plans mapped out and were only waiting for the final regs to be released to actually put them into effect. In many cases, the plans were simple: locate and eliminate marginal, low volume stations where it would be economically unfeasible to spend the money necessary to meet the EPA's technical standards or insurance requirements.

How serious will this shakeout be? Hard to tell at this point. But the Petroleum Marketers Assn. of America conducted an impact survey late last year and preliminary results paint a pretty bleak picture. Initial figures from marketers in just seven states scattered throughout the country show they have closed or plan to close about 1,800 stations because of the storage tank and insurance regulations. In Colorado, New Mexico and Wyoming, marketers expect to shut more than 550 stations. Two states in the Midwest will probably close nearly 500. In one Southern state alone, Alabama, projections are that more than 700 outlets will be closed. Particularly hard hit will be low-volume stations in small population areas. About half of the stations closed or expected to close in Alabama, for instance, are in communities of less than 10,000 people. PMAA will release the final survey results shortly and we'll report them to you in detail.

And this may only be half of the story. Marketers are facing other regulations and current or pending legislation which will cost them more time and money, forcing them to look even more carefully at each of their locations and possibly selling or closing all but the most profitable. Stage II vapor recovery, for instance, remains a major problem for marketers in some areas of the country. And looming on the horizon is legislation such as an increased minimum wage, federally-mandated health benefits, family and medical leave. Any of these complications in themselves might be tolerable. But taken together, in such a short time frame, they are becoming an increasingly heavy burden that a growing numbers of marketers may be unwilling to accept. How it all shakes out can't be predicted, but there is little doubt that within the next few years the playing field and the players in this market will be considerably different.

—Frank M. Victoria

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Now that the EPA has issued its final underground tank regs and financial responsibility rules, marketers are scrambling to learn what they have to do—and when. NPN's special report will answer many of your questions. **Page 33**

Can marketers who face increasing competition from the big urban retail outlets being built by the majors find a profitable niche with low investment, fast service unattended cardlocks? Here's one marketer who believes they can. **Page 74**

Our 80th Year

This month, NPN celebrates its 80th year of continuous publishing and reporting on the oil marketing industry, sharing a history rich in tradition, turmoil and ongoing opportunity. **Page 78**

• TRENDS

RJR Fallout: Could "Big Oil" Be A Target?

One thing that the RJR Nabisco deal proved again is that money and greed have no limitations, no inhibitions, no sensitivities. Based on what happened in the feverish bidding for this conglomerate, it might be presumed that even sex—which vies with hunger as the toughest emotional issues man copes with—would have to take a backseat just to stay in the scene.

The RJR Nabisco deal sent a flock of signals to the marketplaces and financial caverns—some of them, the wrong kind. As one result, the first tier oil companies, heretofore presumed safe and relatively untouchable because of their physical and financial dimensions, no longer have such built-in security.

There is a good chance now that they could very well become the petroleum industry's takeover targets of 1989. Bigness is no longer a valid defense on Wall Street. The RJR Nabisco affair has put acquisitions and mergers in a new perspective—far different than the uneasy one that has existed in recent years.

No oil money was involved in the RJR Nabisco fracas but the blue chips that were tossed around in the financial district by the others competing for this food and tobacco empire were absolutely staggering—$24-billion-$26-billion in the last rounds.

That's twice as much as Chevron Corp. paid for Gulf Oil Corp. in 1984. And that was considered so stupendous at the time that few people thought it would be topped. But now, $13-billion is table stakes; $5-billion deals are hardly worth paying attention to.

Could this then foreshadow a time in 1989 when megabuck companies like Mobil, Texaco and Amoco might become sacrificial pawns? It would be real irony in Mobil's case because this was the company that triggered oil's first big acquisition fight in the early '80s with its bomb shell bid for Marathon Oil Co.

The point is that bids of $10-billion-$15-billion and more—which is what it would take to set up a leveraged buyout for a Mobil, Texaco or Amoco—are no longer so fantastic that they would seem to be beyond reach. Such big money thinking would expose anew the second-tier companies like Unocal, Sun, Marathon, Phillips, Conoco, Amerada Hess, Pennzoil and others. It is very obvious now that nothing is sacred anymore. Except money and greed. If $25-billion can be found for a RJR Nabisco, would $30-billion or more be impossible if someone or some group took off like a skyrocket?

One ingredient the oil companies mentioned above have in common is that they own extensive reserves of oil and liquid condensates. With capital funds for exploration and production at a low ebb and still dwindling, companies with hefty proved reserves are extremely attractive to others eager to shore up their own reserve positions. It costs about $7-$10-bbl. to find and develop reserves. Bought in an acquisition, however, they have a value of approximately $5-bbl.

To appreciate the demand for proved reserves, consider what happened to Tenneco, Inc., when it placed its Tenneco Oil Co. division on the market late last summer. Purchasers-to-be lined up in droves to bid on the oil and gas reserves in this country and abroad.

Tenneco got more than $7-billion for its reserves alone. Its refinery, a relatively modern and highly sophisticated unit, got a couple of nibbles and a buyer (Mobil). Its string of 500 service stations found a new home with an entrepreneur, not an oil man. Its little fuel oil company in upstate New York didn't even get a tumble and has been repackaged to improve its marketability.

Watch out for the players too. They're not always oil companies looking to improve themselves.

Remember, a Florida financier bought the Tenneco service stations, a Canadian gold mining company bought Clark Oil & Refining Co. and several years ago, a Dutch oil trader based in Bermuda bought Arco's old East Coast holdings and started a new company called Atlantic Refining.

This could be an interesting year.

—by J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

NOVEMBER	Gasoline (all types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$0.972	$0.904	$0.949	$1.116
Regions				
Northeast	1.008	.926	.963	1.147
North Central	.976	.920	.958	1.139
South	.970	.899	.945	1.097
West	.943	.892	.933	1.094

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (add 000 bbl.)

	12/30/88	1/1/88
Gasoline (total)	229,568	227,375
Gasoline (unleaded)*	149,569	135,136
Jet Kerosine	37,947	43,666
Distillates	126,432	136,547
Residual	45,174	46,289

** Included in gasoline total*
Source: American Petroleum Institute

Marketing Spending Hitting Record-Breaking Levels

A second look at the capital spending programs of the nation's oil companies confirms anew that marketing is not only faring pretty well, its also getting something akin to a golden handshake in the process.

Marketing is now scheduled to get a $5-billion transfusion this year and another $5-billion by the year 1990. For the 10-year span of 1981-1990, the marketing total is reaching almost a mind-boggling $35.5-billion.

Not only is this an all-time high for marketing, it's positively head-swimming compared to the sums allocated less than 10 years ago—$2-billion in 1981.

For example, when the industry as a whole was spending in excess of $47-billion, most of the money was on exploration and production.

Marketing and refining are generally lumped together as the so-called downstream segment, to separate them from the upstream processes of exploration and production and transportation.

Over the past decade, the total amount spent on downstream hasn't changed that much—$8.4-billion in 1981 (and a high year at that) to $7.7-billion in 1990. The big difference is what went on in the downstream allocations.

Refining, for example, got the lion's share during 1981—$6.3-billion versus $2.1-billion for marketing. By 1990, this situation will have most likely been completely reversed, in spades. Marketing will be getting more than $5.1-billion in 1990 and refining will probably receive at least $2.5-billion.

What happened here, of course, was the change in refining philosophy, the mothballing and/or shutting down of 3.5-million b/d of excess capacity so that the remainder could be operated at a more profitable efficiency rate of 82% to 88%.

A number of high-tech refineries are now well into the 90% operating rate and, within a couple of years, that could become the industry norm.

The steady increases in marketing spending are a direct result of the intensified street competition for gasoline volumes and the pressures exerted by the underground storage tank problems and leak protection programs as well as other high-cost environmental regulations and equipment requirements.

Marketing spending also includes the new look in gasoline stations—the high volume, self service places with their computer linkups and point-of-sale electronic technology.

The table below gives petroleum marketers a 10-year perspective on the industry's spending programs, segment by segment:

Capital Spending In Oil—$425-Billion In 10 Years

(millions of dollars)

	Downstream								
Year	Mktg.	Refg.	Total	Trans.	PChem.	E & P	Misc.	Total Indus	% Down Stream
1990	$5,146	$2,517	$7,663	$2,868	$1,753	$32,474	$5,638	$50,396	15.2%
1989	5,137	2,326	7,463	2,878	1,893	26,813	5,622	44,669	16.7
1988	4,896	2,193	7,089	2,447	1,509	25,780	5,025	41,850	16.9
1987	4,352	1,907	6,259	1,805	1,012	21,199	4,269	34,544	18.1
1986	3,526	2,478	6,004	3,815	861	19,775	4,074	34,529	17.4
1985	3,667	3,376	7,043	3,795	940	33,045	4,442	49,265	14.3
1984	2,575	3,768	6,343	1,070	542	28,235	3,036	39,226	16.2
1983	2,103	3,244	5,347	2,411	637	25,917	3,275	37,587	14.2
1982	1,940	4,825	6,765	2,315	1,206	31,035	4,273	45,594	14.8
1981	2,121	6,288	8,409	2,842	1,369	31,233	3,853	47,706	17.6
Totals:	35,463	31,922	68,385	26,246	11,722	275,506	43,507	425,366	16.1

Note: Transportation includes crude oil pipelines; Petrochemicals includes natural gas processing; Miscellaneous includes oil company coal mining, and all other unclassified investments. 1990, 1989, and 1988 are estimates; all other years are considered actual expenditures. Sources: Data Research, Inc., a subsidiary of McGraw-Hill, Inc., and the old McGraw-Hill Economics Dept. which was merged into DRI.

Unocal And Venezuela Go Ahead With Joint Venture In Midwest

Unocal Corp announces it has signed a letter of intent with Petroleos de Venezuela S.A. (PDVSA) to form a joint venture involving its 147,000 b/d refinery in Lemont, Ill., and almost all of its marketing system in 12 Midwest states for $500-million. The possibility of such a venture was announced earlier, but was conditional on a successful run of Venezuelan crude through the refinery.

The agreement also depends on successful negotiation of joint-venture and crude-oil supply agreements and a number of other agreements, Unocal says. Each party would hold a 50% interest in the standalone venture, with a long-term, 135,000 b/d crude supply contract.

Unocal says the transaction was conditioned on the venture obtaining financing of not less than $400-million with terms acceptable to both parties.

The assets to be transferred to the partnership include, in addition to the refinery, 14 terminals, more than 100 service stations, a lube oil blending and packaging plant, and contracts with a network of 190 marketers who market through 3,400 stations. The new company will continue to operate under the Unocal 76 brand.

Richard J. Stegemeier, Unocal president and CEO, says the venture would provide the company with more reliable margins and significant cash which would be applied to debt repayment or other uses.

March 1989 $6.00

Why Exxon Targeted TBA Business
How Michigan Jobber Meets Competition
Majors, TBA Suppliers Have Common Goal

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Editor's Viewpoint

Baseball's LeRoy "Satchel" Paige advised never looking behind because someone might be gaining on you. That might apply on a baseball diamond (though I doubt it) but not in business.

Marketers and oil companies—understandably transfixed on immediate concerns such as underground tank and financial responsibility regs—have suddenly realized that something else has, in fact, been gaining on them. And it will now take a concerted effort of catchup ball to overcome it.

Little attention was given to amendments to the Petroleum Marketing Practices Act (PMPA) until they were very nearly passed last year. It was a surprising development because service station dealer groups didn't begin lobbying for the amendments until near the end of the legislative session; ominous because they've already begun working on it this year.

Concern centers on three areas of the amendments. One expands the definition of a franchise to include any contract "economically necessary to the operation of the franchise." A contract related, for instance, to a marketing program you decide to drop could be considered part of the franchise agreement, so you might not be able to eliminate that program unless you terminated or did not renew the entire franchise on PMPA grounds. And that could be made more complicated by a second provision in the amendments which requires not only that a dealer be notified 90 days prior to expiration of an option to renew an underlying lease or an option to purchase the property—but also that a jobber couldn't non-renew the franchise for loss of the underlying lease if the dealer retained possession of the property himself.

A third stipulation would change the PMPA's defined standard for service station contract provisions with a "fair and reasonable" standard. Sounds fine. Who'd argue with "fair and reasonable?" Answer: Just about everyone. What, after all, is fair and reasonable? And to whom? That may need to be determined in a courtroom, as will "economically necessary." Mobil's general sales manager Tom DeLoach says the amendments have "more arms and legs than we can stand." They invite litigation. The Petroleum Marketers Assn. of America refers to the amendments as a "lawyers' welfare bill."

The majors have mounted an effort to block passage of the amendments, but "big bad oil" may not get much sympathy. Jobber support is needed to let legislators know that small and medium size businessmen in this industry are also opposed to the amendments, says Amoco marketing vice president Robert Rauscher. The amendments, he states, "could cripple a lot of people . . . They undermine the basic foundation of business relations" between dealers and their jobber and oil companies suppliers.

—Frank M. Victoria

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The government's environmental mandates—underground tanks, Stage II vapor recovery—are stretching many marketers' financial capabilities to the limit. Here's how Florida marketer Robert "Scott" Fore plans to survive the onslaught. **Page 32**

The resurgence of oil-company interest in the automotive aftermarket has traditional TBA suppliers looking for ways to join forces to become tougher competitors in the $90-billion market. **Page 38**

Michigan jobber Mooney Oil is pursuing a 10-year plan for growth in convenience stores and car washes, all built on its solid base of gasoline sales. **Page 48**

Downstream Puts Profits At Near-Record Levels

Not since the early '80s have the top oil companies made as much money as last year. Downstream nets topped about everything in sight, pushing corporate profits to levels that for many were close to all-time highs.

Percentagewise, downstream earnings looked better than they really were, though some were exceptional. Exxon, for example, had a 2000% increase in profits—$669-million in 1988 vs. $32-million in 1987. It made $5.3-billion last year but it also made $5.5-billion in 1984 and $5.4-billion in 1986, so this was only its third best year. Shell had a respectable report for 1988—$1.2-billion but this was exceeded by four or five other years.

Fourth Quarter And Full Year Earnings

(millions of dollars)

	4th Qtr. 1988	4th Qtr. 1987	% Chng.	Full Year 1988	Full Year 1987	% Chng.
Exxon	$1,380.0	$1,555.0	(11.3%)	$5,260.0	$4,840.0	8.9%
Mobil	469.0	474.0	(1.1)	2,094.0	1,348.0	55.3
Chevron	175.0	234.0	(25.2)	1,768.0	1,250.0	41.4
Texaco	296.0	(4,673.0)	—	1,304.0	(4,135.0)	—
Shell	212.0	436.0	(51.4)	1,239.0	1,230.0	0.7
Amoco	375.0	377.0	(0.5)	2,063.0	1,360.0	51.7
Arco	391.0	340.0	0.3	1,583.0	1,224.0	29.3
Tenneco (a)	598.0	(176.0)	—	822.0	(218.0)	—
Conoco	153.0	82.0	86.6	391.0	277.0	41.2
Sun Co.	76.0	83.0	7.5	7.0	348.0	—
Phillips	135.0	33.0	309.1	650.0	35.0	1,757.1
Unocal	141.0	29.0	386.2	480.0	181.0	165.2
Marathon*	123.0	(13.0)	—	506.0	442.0	14.5
Amerada Hess	66.3	(79.6)	—	124.2	229.9	(46.0)
Ashland	96.0	80.0	2.0	1st qtr. '89, fiscal ends 9/30		
Dia. Sham. R&F	27.4	3.3	730.3	53.5	1.6	3,243.8
Pennzoil	36.1	19.1	89.0	1,500.0	45.5	3,296.7
Kerr-McGee	33.4	14.7	127.2	110.1	81.0	35.9
Murphy	25.7	(61.7)	—	38.7	(43.6)	—
Amer. Petrofina	32.9	13.6	141.9	132.9	83.3	59.5
Citgo	NA	NA	—	NA	NA	—
Total N.A.	39.6	(2.9)	—	72.7	(26.8)	—

*Operating income

NB—Both Southland and Cumberland Farms, both C-store chains which are major gasoline marketers, are privately owned and do not issue financial reports.

(a) Includes Tenneco Oil; Tenneco sold its oil division in the fourth quarter and abandoned petroleum marketing.

Downstream, The Full Year Earnings Are Downright Handsome

(millions of dollars)

	4th Qtr. 1988	4th Qtr. 1987	% Chng.	Full Year 1988	Full Year 1987	% Chng.
Exxon	$555	$374	48.4%	$1,804	$509	254.4%
Domestic	255	82	211.0	669	32	2,000.0
Foreign	300	292	2.7	1,135	477	137.9
Mobil	395	(9)	—	996	232	329.3
Domestic	221	53	317.0	554	123	350.4
Foreign	74	(62)	—	442	109	305.5
Chevron	57	163	(65.0)	622	191	225.7
Domestic	160	115	39.1	571	117	388.0
Foreign	(103)	48	—	51	74	(31.1)
Texaco	410	85	382.3	1,116	130	758.4
Domestic	245	(3)	—	651	(36)	—
Foreign	165	88	87.5	465	166	180.1
Shell	124	93	33.3	519	224	131.7
Amoco*	266	69	285.5	897	216	315.3
Arco	88	50	76.0	368	150	145.3
BP-America	NA	NA	—	NA	NA	—
Conoco	112	73	53.4	363	177	105.1
Phillips**	169	64	164.1	471	201	134.3
Sun R&M	73	22	231.8	277	46	500.2
Marathon	NA	NA	—	485	183	65.0

*Worldwide **Operating income

TRENDS

Auto Sector Shines In Dull Lube Market

According to one industry source, the overall growth pattern—if indeed there is any measurable growth—of the U.S. lubricant business over the next three years or so should exhibit the same snail's pace movement the industry has come to know over the past decade. But, for certain segments of the industry—automotive lubricants, for example—the outlook might not be all that bad.

As is the case in most mature industries, growth for individual marketers is achieved not by expanding the overall demand factor in the market, but by getting a step ahead of the competition and increasing market share. The breakneck pace of growth of the fast lube business is a sure sign that innovation targeted toward taking away existing market shares from the more traditional motor oil outlets has become a dominant—and quite successful—strategy for aggressive marketers in that field. This aggressive market penetration has already given fast lube outlets an estimated 20% of the installed oil change market and that market share is growing fast.

The U.S. lubricant industry may not be on a fast track in terms of basic market expansion. But some marketers are going to make a good living from their share of those three billion gallons and $12-billion in sales per year.

Nonetheless, barring this end of the industry, slow growth is a common theme running through most prognostications for the lubricant industry, and a new forecast released by The Freedonia Group, Inc., a Cleveland-based independent research organization, is no exception. According to analyst Kevin Swift, who prepared the final report for the group, the overall volume of lubricant sales "will continue to be hindered by stagnant or slow growing end-use industries, the increased use of plastics and solid lubricant-like materials (i.e., synthetics) and the widespread availability of better performing, longer lasting lubricants." Lubricant sales volume is expected to increase only nominally to 3.1-billion gals. in 1992, says Swift. The value of those sales is expected to be $12.2-billion.

"Commercial products such as engine oils, transmission/hydraulic oils, gear oils and aviation oils will exhibit the most rapid growth," the report concludes. "Industrial products such as industrial lubricating oils and greases and metalworking oils will fare much more poorly."

Commercial lubricants are forecast to increase at an annual rate of 1.9% through 1992, with aviation oils (plus 4.6% per year) and automotive oils (up 1.9% annually) leading the pack. The market for automotive oils, the report says, will increase from 1.614-billion gals. in 1987 to 1.775-billion gal., a gain of 161-million gals.

Sales of industrial products, on the other hand, which have been on a steadily declining curve since 1975, will not grow at all by 1992, according to the study.

Data from two other industry groups, the National Petroleum Refiners Assn. [*NPN*—Dec. '88, p25] and the Independent Lubricant Manufacturers Assn. [*NPN*—Feb. '89, p31] showed surprising increases in lubricant sales in 1987 (about 5.7% in the NPRA report). But most analysts consider those increases to be somewhat temporary "bubbles" in the overall slow growth trend in lubricant volumes. The pattern of industry growth foreseen typically averages between 1% and 2% compounded annual growth through the mid-1990s at least.

There are very good reasons why nobody expects lubricant sales to begin soaring again. Basic changes in the quality and performance characteristics of the basic product along with evolving technologies in end-user businesses has nipped the market growth possibilities of many lubricants. Radically extended service lube service intervals on late-model automobiles is just one example—with Detroit automakers recommending oil change intervals of 7,500 miles and more, except of course in "severe service" situations.

Fortunately, the hard driving new petroleum marketers in the retail lubricant business are not letting Detroit's extended interval line go unchallenged. They're doing the industry, and the American motorist, a service by reminding us that even today's highly sophisticated engines perform better and last longer at oil change intervals of about 3,000 miles.

—by Donald M. Smith

MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

DECEMBER	Gasoline (all types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$0.953	$0.885	$0.930	$1.101
Regions:				
Northeast	1.010	.930	.962	1.153
North Central	.947	.901	.925	1.112
South	.955	.885	.935	1.079
West	.915	.864	.904	1.070

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (add 000 bbl.)

	2/3/89	2/5/88
Gasoline (total)	243,772	241,142
Gasoline (unleaded)*	161,267	146,725
Jet Kerosine	38,039	38,115
Distillates	117,148	123,197
Residual	45,374	45,077

** Included in gasoline total*
Source: American Petroleum Institute

NPN

NATIONAL PETROLEUM NEWS MARCH 1989

"Big Oil" May No Longer Be Immune From Takeovers

Now that the RJR Nabisco deal is a matter of history and $25-billion is no longer regarded as an obscene price to pay for an acquisition, Wall Streeters believe that one or more like it could happen in 1989, perhaps penetrating for the first time the $30-billion-plus stratosphere in the process.

It's not likely that a domestic oil company would be involved in such financial shenanigans, however, because there's only one that might be truly eligible. And it's so big that its elephantine proportions give it an untouchable status. That would be Exxon U.S.A., the Houston goliath which has more than $70-billion in assets and a common-stock value of $60-billion.

It would take some real doings to launch a run on Exxon, but again, considering all that's happened in the takeover arena, can this be discounted just because common sense says so? Money is the only thing that counts and if there's a buck to be made, or tens of millions of them, someone will find a way to rake them in.

Below Exxon's towering posture, the field's wide open, however.

Consider, for example, the top eight oil companies—the hierarchy of the U.S. petroleum industry. These would include Mobil, Chevron, Texaco, Shell, Amoco, BP America and Arco. But Shell and BP America have to be scratched because they are wholly-owned subsidiaries of international companies which are more interested in expanding their American holdings than in diluting them.

To evaluate the various companies, a simplified approach will help put things in perspective: look at their assets, the number of common shares that are outstanding, the New York Stock Market price per share, and the market value, i.e. total shares multiplied by the share quotations.

On this basis, Mobil ranks No. 2 in assets but its common-stock value is technically only $18.5-billion. In the same vein, Chevron has $34.5-billion in assets but only $15.4-billion in common-stock values. Texaco, whose figures change constantly as it sells off various assets to keep ahead of the bankruptcy judge, had $33.9-billion in assets at the end of 1987, but a market value of $12.2-billion. (At year's end there were signs that Texaco might be buffeted by another takeover attempt in early 1989).

Amoco is the real gem. With assets of $24.8-billion and a price of $75 per share, its market value is estimated at $19.4-billion. Arco also has a high per share value, $80, but with fewer common shares in the open its total value is only $14.2-billion.

So there you have it: six oil companies

(Continued on page 24)

The New Mating Game

	Asset Value (Bln $)	Common Shares Outstanding (millions)	Share Value 12/88 ($)	Total Market Value (Bln $)	Institutional Holdings (%)	Hi-Lo Shares 1988 ($)
Exxon	$74.1	1,379	$44	$60.7	25%	($47/$36)
Mobil	41.1	411	45	18.5	45	(49/35)
Chevron	34.5	342	45	15.4	41	(52/36)
Texaco	33.9	243	50	12.2	40	(52/31)
Shell	29.6	(Wholly-owned subsidiary)				
Amoco	24.8	258	75	19.4	42	(80/63)
BP America	23.3	(Wholly-owned subsidiary)				
Arco	22.7	178	80	14.2	55	(90/63)
Conoco	13.0	(Wholly-owned subsidiary)				
Sun	12.6	106	32	3.4	48	(33/28)
Phillips	12.1	228	20	4.6	57	(22/10)
Unocal	10.1	119	38	4.5	51	(40/24)
Marathon	9.5	(Wholly-owned subsidiary)				
Coastal	8.0	45	33	1.5	48	(35/23)
Amerada Hess	5.3	84	29	2.4	53	(33/22)
Ashland	4.1	30	33	1.0	40	(37/26)
Dia. Sham. R&F	0.9	—	14	—	—	(7/17)
Pennzoil	3.3	41	73	3.0	46	(65/81)
Kerr-McGee	3.1	48	37	1.8	77	(42/30)
Murphy	2.1	34	29	1.0	42	(35/20)
Amer. Petro.	1.8	13	67	0.9	2	(75/45)
Citgo	1.2	(Jointly-owned by two companies)				
Getty	(Closely held, near-private ownership)					
Southland	—	(Privately-owned)				
Cumberland Farms	—	(Privately-owned)				

NB—Asset values are those given by the companies in their annual and/or interim reports; Market values represent outstanding common shares times the New York Stock Market mid-December quotations; all numbers have been rounded off for easier assimilation. Sources: Business Week, NPN files, Wall St. Journal, N.Y. Times.

Secondary Containment Essential To Piping

With the release of the Environmental Protection Agency's underground storage tank rules, marketers are becoming more aware of the financial liabilities of a leaking tank. The EPA regs are raising numerous questions about the frequency of a release and what is the best preventative medicine for piping and tanks.

Although the EPA does not mandate secondary containment, more and more marketers are taking a look at this alternative to avoid a confrontation with a leaking UST system.

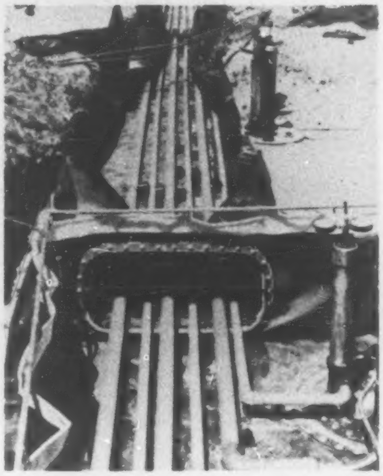
A six-month study recently conducted by Cooley, Inc., Pawtucket, R.I., a developer of reinforced membranes, shows that secondary containment for tanks and piping is essential to help eliminate the contamination of soil and groundwater.

Even fuel oil tank owners, which are not mandated by the federal UST regs, are exploring installing secondary containment in piping systems because of the financial liabilities that could arise from a leaking system, says Chris Semonelli, national sales manager for Cooley. "Secondary containment for piping and tanks has not been properly addressed. Marketers need to be more aware of the entire system if they want to protect themselves from leaks," he says.

After exploring various secondary containment methods, the report states that secondary containment can be a viable means of solving a costly problem.

According to the Cooley report, protected piping was never intended to be overlooked and its importance cannot be overstressed. Cooley says that 60-85% of all leaks occur in piping and that piping failures occur more frequently than the tank.

Cooley stresses that while tanks are manufactured in a controlled environment, a plant where the process is regulated by rules covering material, construction and welding, piping is put together at an outdoor work site where uncontrollable variables such as weather and the site itself come into play. Thus, the protection of piping in actual installations is even more important than quality tank installations themselves, explains Semonelli.



For example, the report states, "unions represent the most traditional method of joining pipes in the United States. However, unions were made for aboveground use only and weren't intended to be buried. They are susceptible to leaks from sideway stresses. Unions invariably account for many leaks." Also, Cooley says swing joints, two elbows connected by a short piece of pipe, are also leak prone.

The report states that secondary containment, which is currently mandated in areas judged to be "high risk,"—such as the contamination of groundwater—can eliminate a number of costs, both actual and potential. More specifically, secondary containment liners have the ability to contain leakage, monitor leakage and recover leakage.

Amoco Capital Spending Declines

Amoco Corp. approved a 1989 capital and exploration budget of $3.5-billion, an 8% decrease from the 1988 budget of $3.8-billion.

Amoco chairman Richard M. Morrow says the 1989 budget represents a 19% decrease compared to the $4.3-billion the company spent last year, which includes $900-million for the acquisition of Tenneco's Rocky Mountain Div. However, the $4.3-billion does not include any spending of Dome Petroleum Ltd.

Amoco's ability to carry out its spending depends on a number of factors, including price levels for crude oil, natural gas and refined products, says Morrow.

Citibank's Citicard Honored By Exxon

Exxon Co. U.S.A., and Citibank are collaborating on a program which allows New York Citibank customers to purchase gasoline and other products with Citicards (an electronic banking card) at Exxon stations throughout the nation.

Those eligible for the Exxon/Citibank arrangement are the more than 1-million Citibank checking account customers who carry the card. The Citicards are honored at about 3,800 Exxon stations in the District of Columbia and 28 states, including more than 500 in metropolitan New York.

Customers present the plastic to the station attendant and on a special key pad enter their personal identification number (PIN). There is a daily ceiling for purchases of $500 in Exxon products and services. Citibank serves consumers throughout the New York area with 264 branch locations and 1,100 electronic Citicard Banking Centers.

Customers using the Citicard at Exxon stations will qualify for the "discount for cash" price offered on gasoline at most Exxon stations, says a company official.

(Takeovers . . . continued from page 23)

with market values ranging from $12-billion to $19-billion. Keep in mind, however, that if any of these companies would be put into play, their stock values would rise significantly. In the case of RJR Nabisco, for example, common shares doubled in value, from $56-$112, before it was all over.

Unquestionably, these would be big mouthfuls to chew if someone tried to convert any of them into takeover targets. But there are two other things to remember in this connection: When Chevron bought Gulf Oil five years ago, the price it paid, $13.5-billion, was believed to be so stratospheric it would never be matched by the speculators and banks. RJR Nabisco's $25-billion just about doubled that figure. Financial circles no longer look at $10-billion to $20-billion bids as impossible to attain. And $5-billion to $10-billion would be peanuts.

Here's another factor that merits consideration: Traditionally institutional investors held on to their stocks and clipped dividend coupons. But in recent years, a new breed of money managers has come on the scene. They're younger and they want the action of the new markets. Institutions now pack a hefty wallop and play a different game.

Institutions currently hold more than 50% of the stock in at least three oil companies—Phillips (57%), Arco (55%) and Unocal (51%). Both Phillips and Unocal have been subjected to runs in the past but managed to escape the noose by piling up big debts. Could they do it again, especially if the institutions decided to cash in their chips?

On the previous page is a simplified boxscore of the top 25 oil companies, any one of which (except Exxon, Shell and BP America) could be involved in street fights in 1989.

States Increase Gasoline Taxes

State gasoline taxes increased in Iowa, Mississippi, Oregon and South Carolina this past January, bringing the average state gasoline tax to 15¢ a gal., according to the Highway Users Federation.

The tax rose to 2¢ in Iowa (20¢) and Oregon (16¢) and a penny in Mississippi (18¢) and South Carolina (16¢).

Diesel fuel also increased in these four states. In Iowa, the diesel tax increased to 22.5¢, Mississippi 18¢ and 16¢ in Oregon and South Carolina. Federal gasoline taxes in every state are an additional 9¢ a gal. and 15¢ for diesel.

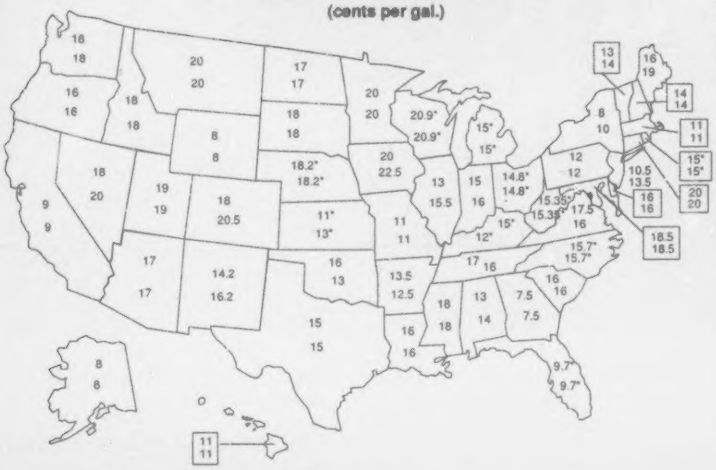
Also, motor fuel taxes rose in 17 states during last year as a result of previously enacted legislation.

The Highway Users Federation reports that these and other taxes comprise a third or more of the average pump price of gasoline, making it one of the most highly taxed commodities in the United States.

Motor Fuel Tax Rates

Gasoline prices top, diesel bottom

(cents per gal.)



* = Variable tax expressed in cents per gal.

☐ = Local option tax.

Source: Highway Users Federation, Jan. 1, 1989.

Tenneco Sells Wholesale Business To New Company

Stratus Resources, Inc., of New York, a recently-formed company, has purchased Tenneco's wholesale marketing business which is located primarily in the Southeast from Florida north to Maryland and New York.

Tenneco has only one more marketing asset to dispose of before it is entirely out of the oil business—a small fuel oil jobbership in northern New York. Stratus reportedly is owned by a Chinese businessman who also holds a 33% interest in Singapore Refining Co.

Tenneco says the wholesale network consisted of wholly-owned terminals in Syracuse and Albany, N.Y., Newark, N.J., Baltimore, Md., Norfolk, Va., Blakely, Ga., St. Marks, Fla., and a one-third interest in Southern Facilities Terminals, which operates 15 terminals along the Colonial Pipeline.

Meantime, Tenneco has wrapped up its deal with Phillip Handy for its service chain network in the South, and its sale of 80 stations to Diamond Shamrock in the Southwest. Industry sources says Tenneco C-stores will be renamed Majik Markets and that the new holding company itself will be known as Tennacquo, Inc.

Phillips '89 Downstream Budget Hits $389-Million

Phillips Petroleum Co. moved even closer to the $1-billion expenditure plateau with its 1989 capital projects budget of $975-million, of which $389-million will be channeled into downstream activities. The downstream emphasis is almost 20% beyond what was appropriated in the 1988 budget, totaling $902-million.

The ethylene manufacturing capacity is to be increased by 1.5-billion pounds at their Sweeny, Texas refinery and petrochemical facility. As well as expanding its manufacturing capacity in several plastic lines at the Houston chemical complex.

Of the $510-million budgeted upstream, just over $400-million will be sunk into global exploration and production. More than 50% of that upstream amount is designated for overseas. Upstream expenses for 1988 were anticipated to be about $490-million.

Franchise, Processing Fees Cut By Gascard

Gascard, Inc., the California fleet fueling company, which has been on the brink of fiscal collapse, is now cutting the costs for processing fees and new franchisee fees.

The company's processing fee structure has been reduced so that "greater total fuel volume qualifies a franchisee for lower fees." The current average transaction cost stands at 2.24%, under the new structure, the per unit cost would be 1.05%.

According to Gascard, the company can endure its shrinking processing revenue because of its Distributive Authorization System (DAS) which affords franchisees and customers pre-purchase clearance, without the costs of similar equipment. Gascard envisions a glowing future for DAS, automation which its personnel developed. The company says DAS "will revolutionize transaction processing and substantially increases Gascard's lead in transaction processing technology."

The charge for purchasing a franchise in new areas has been reduced from $12,500 to $750. Present franchisees can close on new franchise agreements with no cost assessed to their existing territory.

Gascard reports that volume has taken an upturn, from 7-million gal. in January 1988 to between 8.5-million and 9-million gal./mo. That the company is on the move is perhaps best symbolized by its relocation—from La Jolla to Carlsbad, Calif., an address change that will save the fleet fueler approximately $20,000 per month.

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How Jobber Wins With Small Town Stations
What To Know About Hazard Communication
Why Industry Is Focusing On PMPA

NPN

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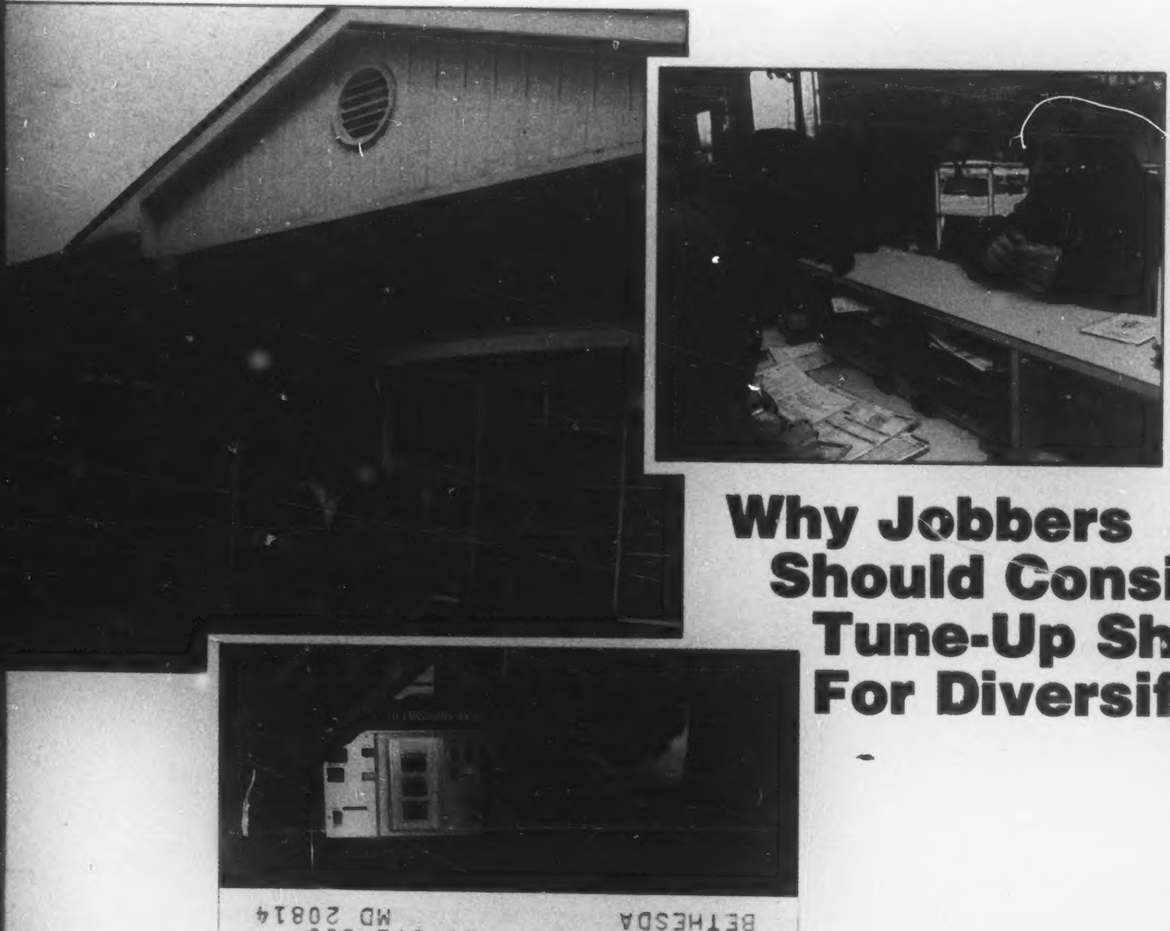

Why Jobbers Should Consider Tune-Up Shops For Diversifying

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Editor's Viewpoint

A lot of marketers are beginning to realize that the Environmental Protection Agency deadlines for the technical requirements of its underground tank regs are an illusion. On paper, the EPA set the timetable. In practice, however, the realities of the marketplace dictate. Who's really calling the shots? Let's take a look.

The financial responsibility segment of the regs, which establish pollution liability requirements and dates by which they must be met, is the pivotal factor. Concern over availability and affordability of environmental liability insurance that meet EPA minimums are compounded by mixed signals between marketers and insurance carriers. Marketers and association executives told us insurance companies wouldn't write policies for them. Insurance companies denied that. After going back and forth a few times and looking into the matter more deeply, it turns out both, in a sense, are right.

The insurance companies will provide coverage alright—if marketers meet certain requirements. And those requirements often amount to complying with key provisions of EPA's technical standards—upgrading (cathodically protecting steel tanks, installing leak detection devices, meeting spill and overfill requirements, etc.) or replacing old tanks. A soil test is also almost always required, and most sites in operation for any length of time will very likely show some sign of pollution. Insurance companies say they'll cover marketers who don't do this, but premiums will be very high. (That gets into the affordability vs. availability debate, something we'll cover in an upcoming issue.)

The EPA regs provide a 10-year phase-in period to implement the technical standards. But the financial responsibility requirements must be met sometime between now and October 1990 at the latest, depending on how many tanks you have. If insurers won't write a policy until key technical regs have for all intents and purposes been met, then the deadline for complying with those technical regs is, in effect, the same as those for the financial responsibility requirements. The 10-year phase-in is rendered meaningless and insurance companies are setting the deadlines.

Let's point out that the insurance companies are probably acting in what they believe is a prudent manner. In their place, would you just cover a marketer with 20-year-old unprotected steel tanks? (Some insurance companies are, in fact, doing that for their current long time customers.) Nonetheless, marketers are for now caught between the rock and the hard place—either shell out big bucks to get insurance without meeting the requirements or shell out big bucks to upgrade and get insurance at a lower price.

—Frank M. Victoria

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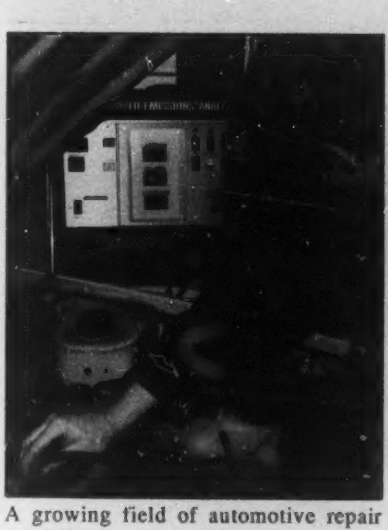
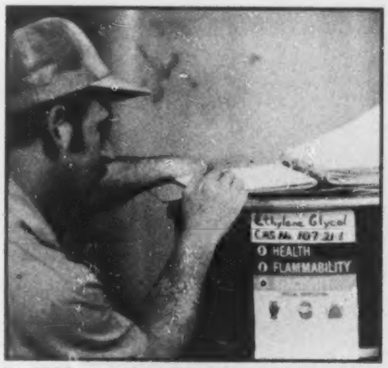


A growing field of automotive repair specialization—the engine tune-up shop—could be just the ticket for marketers looking for a profitable area for diversification. But, proceed with care. Tune-ups are much more sophisticated these days. **Page 38**



In 1988, petroleum marketers came under the wing of OSHA's Hazard Communication Standard (HCS). Here's a briefing on what marketer responsibilities are under the standard and how to meet those responsibilities. **Page 42**

Michigan marketer James Ahearn has achieved extraordinary gasoline and C-store sales volumes with comparatively minimal investments by upgrading a group of "old dog" service stations. **Page 52**

• TRENDS

RVP And States Rights: Is A Showdown Ahead?

Push, shove and Reid Vapor Pressure Standards are on a collision course in the Northeast with May 1 as the date for a showdown which may—or may not—produce conclusive results. The greater likelihood is that it is going to set off a summer of discontent as a variety of states righters, suppliers and federal authorities joust for dominance.

What happens here may also cast long shadows on other parts of the country which have smog and air pollution problems.

RVP is a gasoline volatility standard. Higher RVPs help cold weather start-ups, minimize stalling problems and keep engines chugging happily in the winter months. But lower RVPs produce the same results in the warmer months and, at the same time, contribute significantly to a reduction in atmospheric contamination.

That's what the fuss is all about. Northeasterners want the RVP standard lowered in the interests of cleaner air, even though they may have to pay more for their gasoline in the summer months or even run into shortages here and there. Shortages, if they do develop, would probably only affect premium grades of gasoline—not the mids and regulars.

All of the New England states plus New York and New Jersey made a common agreement in November 1987 demanding that RVPs be reduced from the present level of 11.0-psi to a maximum of 9-psi before the summer driving season starts May 1 [*NPN*—Jan. '88, p20].

The Environmental Protection Agency, which has been criticized for its snail-like approach to the problem, is still debating its course of action amid indications it is thinking of a standard of 10.5-psi. That would make gasoline suppliers happier.

EPA is also said to be considering a standard that preempts local rules and regulations, a concept that virtually all suppliers endorse. But if it does happen, it will rile the states righters who have been fighting for local jurisdictions to solve local problems.

EPA's track record for taking decisive steps isn't all that good, however, so no one is really sure at this point whether it will intervene before May 1 or stand by and watch the regional plan go into effect.

It's a safe bet to presume that there will be court battles this summer no matter which side comes out on top. Massachusetts has already forced EPA to back off somewhat. It threatened to sue EPA if a national standard was imposed and won the right to retain its stricter local standard—meaning an RVP of 9-psi.

Meantime, the queasiness of the situation put most suppliers on the spot. The local regulations require that all service stations must be supplied in advance with the RVP 9-psi gasoline so that they can begin selling it beginning May 1.

Suppliers say it takes as much as two months to get every station positioned to obey the law. They also say that after the September. 1 cutoff date, it takes another two months to replace the summertime gasoline with a winter grade of 11 or 10.5, or whatever it may be. Thus their "season" is not May 1 to September 1 as the regulations require, but March 1 to November 1.

There has been much talk about a lowered RVP hiking gasoline prices 1-3¢/gal. to cover higher processing costs. There's also talk that refining capacity has no surpluses to fall back on. Neither of these two items make much sense right now—crude supplies are more than ample around the world and these usually restrain product price increases; and as far as refining capacity is concerned, the industry has been utilizing between 80% to 85% in recent years. Thus it has at least a 15-20% safety level.

There used to be a concept in the refining segment in the 1960s called the "incremental barrel." This implied that the more the refiners ran their equipment, especially in the 90% ranges, the more economical their costs overall, especially as they applied to the additional barrels. Is this concept passe now?

—by J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

JANUARY	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg:	0.944	0.876	0.918	1.091
Regions:				
Northeast	1.010	.930	.966	1.152
North Central	.938	.890	.914	1.103
South	.949	.881	.920	1.069
West	.896	.848	.883	1.048

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (add 000 bbl.)

	3/3/89	3/4/88
Gasoline (total)	246,200	236,748
Gasoline (unleaded)*	165,493	147,619
Jet Kerosine	35,720	37,853
Distillates	106,483	106,567
Residual	43,649	43,954

** Included in gasoline total*
Source: American Petroleum Institute

New Forecast Says Gasoline Demand Will Grow, Then Erode In The '90s

For the next 10 years—the last decade of the 20th Century—the outlook for oil marketers is both comfortable and uncomfortable: solid in the sense that supply factors should be steady in the '90s but depressing too in that the latest long-term projection implies only minor-to-modest growth in demand.

Gasoline, the industry's frontline product, will suffer the most in the decade ahead, according to the federal government's energy experts.

Gasoline demand, they now say, will peak in 1992 at 7.46-million b/d then decline annually until 2000, when a mod-

(Continued on page 30)

Long-Term Crystal Ball: What The Federal Experts Foresee For The '90s

	1988	1989	1990	1992	1994	1996	1998	2000	% Chng. 2000
Imported Crude Prices Will Double by 2000 A.D.									
					(1988 $/bbl.)				
High Case	14.70	17.10	18.00	20.20	22.80	26.50	30.80	35.00	
Low Case	14.70	12.40	12.89	13.80	15.80	17.70	19.50	21.70	
BASE CASE	14.70	14.40	15.00	15.90	18.90	22.50	26.00	28.00	90.5%
					(Add 000 b/d)				
Gasoline Demand Will Peak in 1990 But Erode Gradually Thereafter									
Motor Gasoline									
High	7.34	7.39	7.31	7.07	6.98	6.97	6.94	6.95	
Low	7.34	7.50	7.57	7.48	7.43	7.44	7.51	7.59	
BASE CASE	7.34	7.44	7.46	7.33	7.23	7.19	7.18	7.26	(1.1)
Distillate Demand Will Rise Modestly To Meet Transportation Needs									
Distillates									
High	3.22	3.28	3.31	3.37	3.43	3.50	3.57	3.62	
Low	3.22	3.34	3.36	3.48	3.54	3.60	3.69	3.76	
BASE CASE	3.22	3.32	3.33	3.44	3.49	3.54	3.61	3.69	14.6
Percentagewise, The Outlook For Residual Is Almost Rosy									
Residual									
High	1.25	1.16	1.20	1.20	1.28	1.45	1.44	1.45	
Low	1.25	1.24	1.38	1.62	1.70	1.91	2.00	2.01	
BASE CASE	1.25	1.20	1.30	1.47	1.49	1.66	1.63	1.70	36.0
Other Products (includes jet fuel, avgas, LPG, lubes, waxes, etc.)									
BASE CASE	5.20	5.24	5.35	5.47	5.55	5.66	5.77	5.96	14.6
Over-all, A Decade of Growth Will be Slow in Materializing									
Total Refined Product Supply									
High	17.01	17.00	17.04	16.93	17.09	17.48	17.60	17.81	
Low	17.01	17.39	17.76	18.17	18.35	18.78	19.19	19.53	
BASE CASE	17.01	17.20	17.44	17.72	17.78	18.05	18.19	18.61	9.4
Simultaneously, Domestic Production Will Fall About One-fifth									
Crude Oil and Products									
BASE CASE									
Crude/Cond.	8.18	7.97	7.64	6.87	6.37	6.05	5.94	5.89	
Ntl. Gas Lqds.	1.61	1.62	1.67	1.71	1.75	1.78	1.84	1.87	
Total	10.51	10.31	10.03	9.29	8.82	8.52	8.46	8.45	(19.6)
While Imports Will Skyrocket, Especially Crude Oil									
IMPORTS (including Strategic Petroleum Reserve)									
Crude	5.12	5.54	6.16	7.06	7.50	7.97	8.09	8.49	65.8
Products	1.96	2.09	2.16	2.30	2.37	2.46	2.48	2.54	29.6
Total	7.08	7.63	8.31	9.36	9.86	10.43	10.57	11.03	55.8
EXPORTS									
Crude	.17	.17	.19	.19	.19	.19	.19	.19	
Products	.64	.62	.63	.63	.63	.63	.63	.63	
Total	.81	.79	.83	.83	.83	.83	.83	.83	3.8
And U.S. Dependency on Foreign Oil Will Grow Steadily Throughout									
NET IMPORTS	6.28	6.84	7.49	8.53	9.04	9.60	9.75	10.20	62.4
% of U.S. supply	36.9	39.8	42.9	48.1	50.8	53.2	53.6	55.2	49.6

Source: Energy Information Administration, Annual Energy Outlook 1989, with some calculations by NPN.

Coastal Launches National Franchise Program

Coastal Refining and Marketing, Inc., a subsidiary of The Coastal Corp., is launching a new national franchise program for branded petroleum marketers.

The firm intends to sign up several hundred independent marketers annually to market motor fuel under the Coastal C Mart brand name.

Jack Pester, Coastal's senior vice president for refining, marketing and supply says, the company will fund, up front, the conversion cost for new station graphics (signs, logo, canopy, pump decals, paint, etc.), with repayment based upon qualified purchases of fuel from Coastal.

Steven Boyd, vice president of wholesale marketing for Coastal Refining and Marketing, Inc., says "Another unique aspect of our new program is the fact that Coastal is offering new marketers a credit card program using the latest point-of-sale (POS) electronic authorization and data capture system that provides instant on-line credit authorization." Also, new C Mart branded marketers will receive the support of Coastal's advertising and promotion.

Newly-franchised Coastal-branded gasoline stations are expected to complement Coastal's current network of 900 C-stores/gasoline outlets located in 22 states.

Marathon Unveils 92-Octane Gasoline

Marathon Petroleum Co. introduced two new 92-octane unleaded gasolines throughout the firms marketing territory last month.

A 92-octane premium unleaded gasoline was unveiled at more than 2,500 Marathon-branded service stations throughout six Midwest states. The 92-octane unleaded gasoline was also being marketed through 1,400 subsidiary locations flying the Speedway, Bonded, Gastown, Cheker, ECOL, Globe, Port and Value flags. This product will also be available to Marathon's redistribution customers throughout the firm's 22-state Midwest and Southeast marketing territory.

Analyst: Import Fee Would Be Crippling

An oil import fee or other defensive measures would be an economic debacle for consumers, oil producers and business, says industry analyst Robert L. Bradley, Jr., author of The Mirage of Oil Protection.

Preferable to "protectionist legislation," Bradley believes, is a market-oriented reforms package of tax incentives, deregulation and privatization at the state and national sector. In the book's closing section Bradley concedes, "The grain of truth in the protectionist argument is that there is an industry crisis that the government can alleviate [through] policy reform."

(Forecast *. . . continued from page 28)*

est surge will hike it back up to a level that's only slightly below 1988s 7.34-million b/d. The 1988-2000 decrease will be in the neighborhood of 1.1%.

Although summertime driving demands in the past have seen gasoline consumption exceed 8.0-million b/d for limited periods, the all-time high for any one year as a whole was 1978's 7.62-million b/d.

The latest forecast is contained in the Energy Information Administration's Annual Energy Outlook 1989, distributed in mid-January (see accompanying table, p28). A few weeks later, EIA also published its traditional Short-Term Forecast which, except for some unexpected increases in gasoline prices, varied little from its immediate predecessor [*NPN*—Jan. '89, p46].

As usual in forecasts of this type, the new long-term projections use three scenarios—high, low and base (or average) cases. The highs indicate what things might be like if the world price of crude gets as high as $35/bbl. by 2000. The lows use a $21 figure—about two-thirds less. The average in the new study is $28/bbl. which, while 90% higher than the current world oil price of crude, is still far below some oil company and private forecasts that talk in terms of $50/bbl. to $100/bbl. by 2000. It also is substantially lower than the $40/bbl. to $45/bbl. crude that was commonplace in the late '70s.

In its discussion of crude oil prices, the government study noted that the Organization of Petroleum Exporting Countries had implemented a production-control formula in January but that if one or more members are "unwilling to adjust production downward to stabilize prices in the future, the old pattern threatens to repeat itself so long as excess production capacity continues." This, the study says, can again bring about wide fluctuations in prices.

The key to understanding the slippage in gasoline consumption, the study says, is the role improved automobile fuel efficiency is playing. Traveling will be up an average 2.1% per year in the '90s but new-car fuel efficiency will rise too, about 1.5% per year from 28.5 mpg in 1988 to 34 mpg in 2000. Thus they'll offset each other and dampen motor fuel consumption.

As for distillates, diesel fuel for transportation will grow and take care of the annual increases in this product. What this means in reverse fashion, however, is that distillates for space-heating are either going to stand still or decline over the next decade. Distillates for space-heating, at this point in history, are the industry's second biggest liquid-oil product.

The new study reconfirms what many industry and government executives have been saying right along—that U.S. dependency on foreign oil is going to take 20 League strides in the waning years of the 20th Century.

From 36.9% of the U.S. supply in 1988, crude and product imports will leap upwards to the 55% level in 2000. This will be an increase of 62% in the liquid volume over the years. Correspondingly, U.S. liquid oil production (crude and natural gas liquids) will slump almost 20% to 8.5-million b/d.

Report Reveals Engine Damage From Low-Lead

The phaseout of leaded gasoline can adversely effect millions of engines traditionally designed for leaded fuel, according to a recently released report titled *Need for Leaded Gasoline on the Farm*.

A report prepared by the Environmental Protection Agency and the U.S. Dept. of Agriculture revealed that low-lead or unleaded gasoline can have a destructive effect on marine and recreational vehicle engines.

Gerald H. Nessenson, president of Valv-Tect Petroleum Products Corp., said at a subsequent EPA hearing, "Gasoline pumps dispensing low-lead gasoline of less than 0.5 grams of lead per gal. should be required to state the specific lead content. They should also warn that the low-lead gasoline may not protect certain engines designed to operate under high speeds and heavy loads."

He also recommended that gasoline retailers and consumers be advised by suppliers of the current reduced level of lead in leaded gasoline, and that it may not be sufficient to provide antiwear protection to certain engines.

The study analyzed eight engines, the types found in combines, trucks, farm tractors, marine and RV's, which are routinely operated with heavy cargo and depend on lead to prohibit premature engine damage and failure according to the leaded gasoline report.

Gasoline Prices Soar In Foreign Countries

The price of full-serve regular gasoline reached new heights in some parts of the country at the end of last year, according to Runzheimer International.

The pump price for full-serve regular gasoline in Abidjan, Ivory Coast was amongst the highest nationally with a price tag of $4.16/gal. In Tokyo, gasoline was priced at $4.10/gal. However, in other countries gasoline prices plummeted to an all-time low. In Caracas, for example, Venezuela gasoline was extremely cheap at 14¢/gal.

In the states, however, full service unleaded regular gasoline prices were recorded at about $1.24 during the last month of 1988.

High Priced Gasoline

Location	Fuel Price
Abidjan, Ivory Coast	$4.16
Tokyo, Japan	4.10
Milan, Italy	3.80
Naha, Okinawa	3.77
Copenhagen, Denmark	3.75**
Hamilton, Bermuda	3.43*
Dublin, Ireland	3.36
Paris, France	3.26
Helinski, Finland	3.05
Amsterdam, Netherlands	3.03
Lisbon, Portugal	3.03

Inexpensive Gasoline

Location	Fuel Price
Caracas, Venezuela	.14
Lagos, Nigeria	.30*
Quito, Ecuador	.37
Santo Domingo, Dom. Rep.	.53
Kuwait	.54
Bogota, Columbia	.56
Cairo, Egypt	.57

*price based on full-serve super
**price based on self-serve regular

Gasoline Prices Better Than Expected

Energy Information Administration's latest Short-Term Forecast, issued in late January, credited gasoline pump prices with being better than it had anticipated last fall.

The new price projections for the first half were up 6-7¢/gal. over the old numbers published in October [*NPN*—Jan. 89, p47].

The revised forecast and the old numbers (in parenthesis) were as follows:

Last quarter '88, 97¢/gal. (95¢); 1st quarter '89, 96¢/gal. (89¢); 2nd quarter, $1/gal. (93¢/gal.); 3rd quarter, $1/gal. (99¢); and fourth quarter, both numbers were the same, 96¢/gal.

Otherwise there were only minor variations between the October and January forecasts.

Shell To Buy 18 Outlets In Chicago From Gas City

Shell Oil Co. is planning to buy up to 18 of 30 Gas City outlets in metropolitan Chicago and northern Indiana for an undisclosed amount from Gas City Ltd., a Frankfort, Ill.-based gasoline/C-store chain.

Houston-based Shell says the exact number of stations to be turned over will depend on permits and environmental issues. The deal is expected to be finalized this month.

Many of the stations are "large, modern" locations on high-traffic corners with convenience stores and four have car washes. Since the stations are generally updated, most of them will only require sign changes to the Shell brand.

Self Service Sales Still Growing At Record Rates

American motorists continue to choose self service over full service when purchasing gasoline. Since 1975, self service gasoline sales have consistently increased at record rates from 22% to 80% last year, according to Amoco Oil Co. marketing research.

The market share for self-serve last year jumped one percentage point from the previous year and represents an increase of more than six percentage points since 1984.

Self-Serve Motorist Gasoline
Market Share by State (%)
October 1988 vs. October 1987:

	1987	1988	chg.
Alabama	82	83	+1
Arizona	92	93	+1
Arkansas	82	83	+1
California	90	91	+1
Colorado	93	93	NC
Connecticut	70	72	+2
Delaware	84	85	+1
D.C.	85	83	−2
Florida	90	91	+1
Georgia	87	88	+1
Idaho	87	89	+2
Illinois	88	88	NC
Indiana	87	88	+1
Iowa	83	85	+2
Kansas	82	82	NC
Kentucky	78	79	+1
Louisiana	90	90	NC
Maine	52	53	+1
Maryland	85	86	+1
Massachusetts	50	52	+2
Michigan	85	87	+2
Minnesota	82	83	+1
Mississippi	82	82	NC
Missouri	84	83	−1
Montana	91	91	NC
Nebraska	78	81	+3
Nevada	91	93	+2
New Hampshire	64	65	+1
New Mexico	91	92	+1
New York	57	59	+2
North Carolina	87	88	+1
North Dakota	80	78	−2
Ohio	84	86	+2
Oklahoma	86	86	NC
Pennsylvania	64	66	+2
Rhode Island	66	66	NC
South Carolina	88	89	+1
South Dakota	80	81	+1
Tennessee	84	85	+1
Texas	92	92	NC
Utah	94	94	NC
Vermont	55	59	+4
Virginia	90	90	NC
Washington	92	91	−1
West Virginia	74	75	+1
Wisconsin	89	89	NC
Wyoming	84	86	+2

May 1989
$6.00

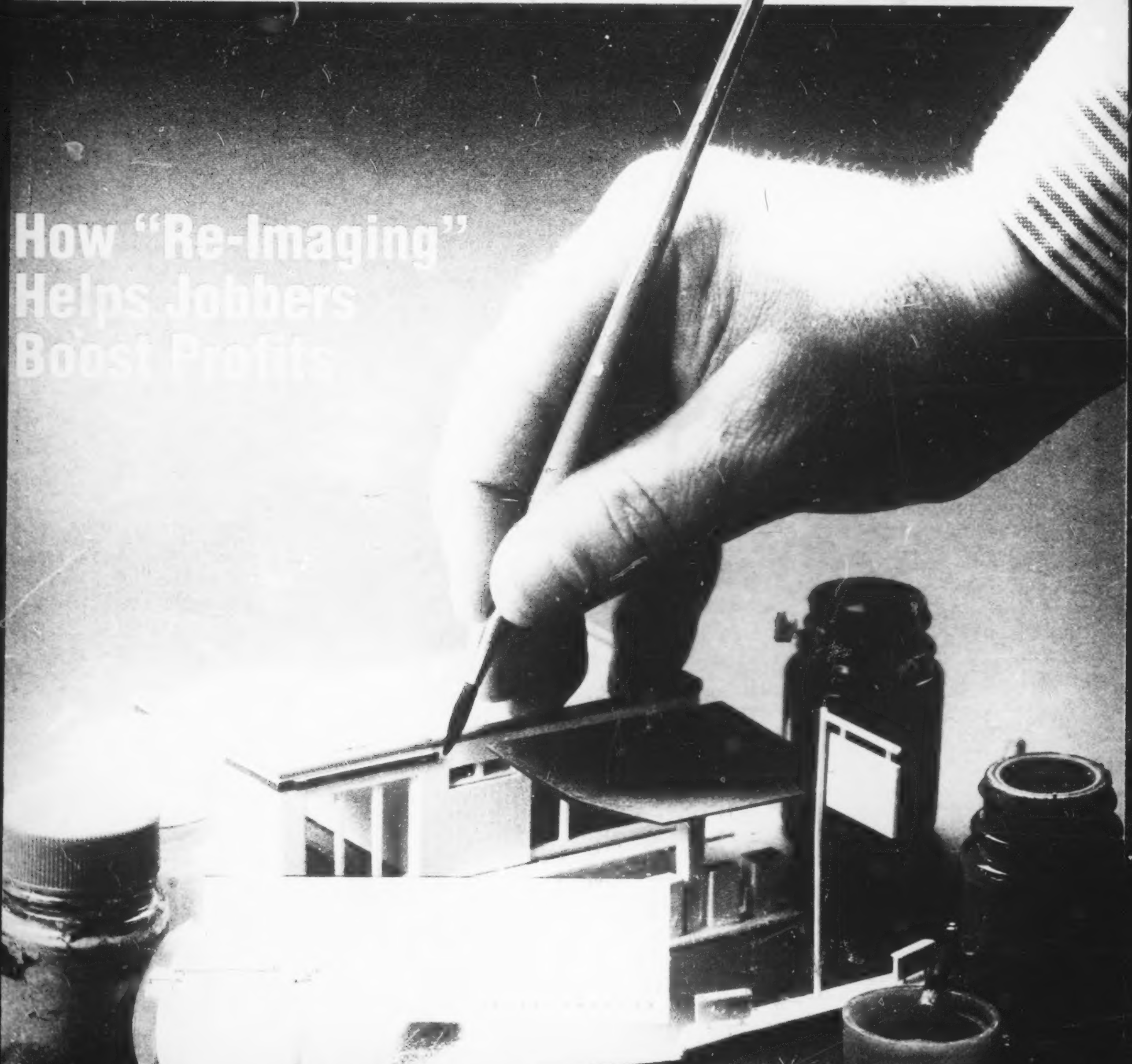
Why Orlando Faces Market Share Battle

Honolulu's PRI Eyes Pacific Rim Market

How Mobile Unit Cleans Contaminated Soil

NPN

National Petroleum News



How "Re-Imaging" Helps Jobbers Boost Profits

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Editor's Viewpoint

The environmental impact of the massive oil spill resulting from the Exxon Valdez running aground in Alaskan waters has yet to be fully determined, and probably won't be for years to come. But even at this stage, there are few people, including oilmen, who view it as anything less than a disaster.

One of the key questions now is what the reaction—or overreaction—to the incident will be. Hard-line environmentalists are already on the offensive. The spill will no doubt be linked with arguments against beginning oil exploration and production in the Arctic National Wildlife Refuge (ANWR).

The spill and ANWR are, however, unrelated issues because although they are both environmental concerns, they involve different kinds of environmental hazards and precautions. Moreover, all forms of practical energy production today involve dangers and trade offs. Development of more nuclear power has been brought to a virtual standstill because of fears, realistic or not, of potential dangers. Even if coal could be burned without emitting any contaminants into the air, its production includes also risks, both to the landscape where the mines are dug and to the miners who dig it out. Solar and other alternate energy sources are simply not yet practical on a widescale basis.

Beyond this, however, the spill needs to be put into perspective. True, just this one is serious. But it is the only accident in the 12 or so years since North Slope crude has been transported to the "lower 48," and in that time about 9,000 tanker trips have carried nearly 7-billion barrels of oil which were pumped through the pipeline and shipped out of Valdez.

Also, the danger of a tanker mishap will exist whether the crude carried comes from the newly developed oil fields in the ANWR or existing ones near it or somewhere else outside of the United States. Currently, about 45% of the oil we use is imported—by tanker—from foreign sources. You can be sure those oil imports will increase if the ANWR remains off limits as North Slope crude gradually runs down. Government estimates indicate that the ANWR can provide as much as a million barrels of crude a day. Without this, the supply end of the supply-demand equation drops substantially. Meanwhile, demand is increasing. Higher prices become inevitable. The public is already indignant (with some justification) about the sudden dramatic rise in gasoline prices which followed the Alaskan spill. But this price jump is temporary. Unless new sources of domestic crude, including those in the ANWR, are developed, prices will eventually climb higher than they are now and stay there indefinitely. And when that happens, most motorists will think marketers and their oil company suppliers are gouging them.

—Frank M. Victoria

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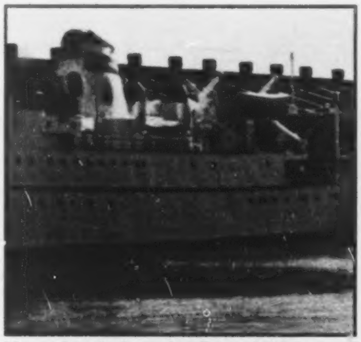
Majors and independents alike are throwing millions into the pot to upgrade their stations and build a consistent image. The price is high, but so are the rewards in terms of sales and increased market share. Page 28



Now that it has the financial clout of Australian powerhouse Broken Hill Proprietary Co. behind it, aggressive Honolulu-based refiner/marketer Pacific Resources, Inc., is planning some major moves into the Pacific Basin. Page 36

Orlando, Fla., home to the Disney fantasy world, is attracting attention and sizeable marketing investments from companies which want to hitch a ride on that booming market economy. Page 42

Changes In Octane Levels Are Slight, Study Says

Apparently, all was relatively quiet on the octane front between the summers of 1987 and 1988, according to a recent study released by a Bartlesville, Okla. research group.

According to the National Institute for Petroleum and Energy Research, octane values for three grades of gasoline changed only marginally from the summer of 1987 to the summer of 1988. Leaded regular octanes were down insignificantly—two tenths of a point. Unleaded regular octanes increased only by one tenth of a point, while unleaded premiums saw no change whatsoever. The tables below track average octane levels since the beginning of the decade and show regional averages for the most recent winter/summer period reported.

Gasoline Octanes, U.S. Service Stations

		Leaded Regular(a)			Unleaded Regular(b)			Unleaded Premium(c)		
Year	Season	Rsh.	Mtr.	(R + M)*/2	Rsh.	Mtr.	(R + M)*/2	Rsh.	Mtr.	(R + M)*/2
1988	Summer	93.3	83.7	88.5	92.2	82.7	87.5	97.0	86.8	91.9
1987-88	Winter	93.1	84.2	88.7	91.9	82.9	87.4	96.7	87.0	91.9
1987	Summer	93.3	84.0	88.7	92.0	82.7	87.4	96.8	86.8	91.8
1986-87	Winter	93.1	84.2	88.7	91.7	82.7	87.2	96.7	86.9	91.8
1986	Summer	93.3	84.3	88.8	92.0	82.7	87.3	96.7	86.7	91.7
1985-86	Winter	93.0	84.5	88.8	91.8	82.8	87.3	96.8	86.9	91.8
1985	Summer	92.8	84.8	88.8	91.9	82.8	87.4	96.5	86.8	91.7
1984-85	Winter	92.8	85.2	89.1	91.8	82.9	87.4	96.4	86.8	91.6
1984	Summer	92.9	85.0	89.0	91.6	82.9	87.3	96.5	86.9	91.7
1983-84	Winter	92.7	84.9	88.8	91.7	82.9	87.3	96.1	86.6	91.3
1983	Summer	93.1	84.9	89.0	92.0	82.9	87.5	96.4	86.5	91.4
1982-83	Winter	92.9	85.2	89.1	91.7	82.9	87.3	96.3	86.7	91.5
1982	Summer	93.0	85.0	89.0	91.9	82.8	87.3	96.8	86.6	91.7
1981-82	Winter	92.7	81.1	88.9	91.8	82.9	87.4	96.6	86.8	91.7
1981	Summer	92.8	85.1	89.0	91.9	83.0	87.4	96.3	86.2	91.3
1980-81	Winter	92.8	85.4	89.1	91.9	83.3	87.6	96.1	86.5	91.4

(a) Below 93 octane; (b) Below 90 octane; (c) 90 octane and above; *Antiknock index.
Source: Motor Gasolines, Summer 1988, National Institute for Petroleum and Energy Research, Bartlesville, Okla., published March 1989

Regional Octane Averages—Summer 1988

	Leaded Regular(a)			Unleaded Regular(b)			Unleaded Premium(c)			Alcohol-blended Premium(d)		
Regions(e)	Rsh.	Mtr.	R + M*/2	Rsh.	Mtr.	R + M*/2	Rsh.	Mtr.	R + M*/2	Rsh.	Mtr.	R + M*/2
Northeast	94.6	83.7	89.2	92.8	82.7	87.8	97.8	86.7	92.3	NS	NS	NS
Mid-Atlantic Coast	94.2	84.1	89.2	92.8	82.7	87.8	97.6	86.9	92.3	97.7	86.8	92.3
Southeast	94.0	84.1	89.1	92.3	82.5	87.4	97.3	86.8	92.1	98.2	86.5	92.4
Florida	93.9	84.5	89.2	92.9	82.9	87.9	98.4	87.4	92.9	NS	NS	NS
North Central	94.1	84.6	89.4	92.3	82.9	87.6	96.5	87.9	92.2	96.7	86.4	91.6
Ohio Valley	93.9	84.5	89.2	92.2	82.8	87.5	96.8	86.9	91.9	97.4	87.2	92.3
Central and Upper Plains	93.1	83.8	88.5	92.0	82.7	87.4	96.0	88.6	91.3	96.2	85.6	90.9
Oklahoma and East Texas	94.1	83.4	88.8	92.3	82.4	87.4	97.0	86.9	92.0	97.1	86.3	91.7
North Mountain States	92.0	82.6	87.3	90.7	82.3	86.5	95.4	86.3	90.9	96.8	86.9	91.9
Central Mountain States	91.2	82.3	86.8	91.3	82.1	86.7	NS	NS	NS	NS	NS	NS
New Mexico and West Texas	92.1	83.3	87.7	92.2	83.0	87.6	95.2	85.9	90.5	NS	NS	NS
West Southwest	92.7	83.6	88.2	92.2	82.9	87.5	97.4	86.6	92.1	96.2	85.6	90.9
Pacific Northwest	92.6	83.7	88.2	92.1	83.1	87.6	97.2	87.2	92.2	NS	NS	NS
North California and North Nevada	93.4	83.0	88.2	92.8	83.0	87.9	97.6	86.4	92.1	97.2	86.1	97.1
South California	93.0	83.6	88.3	92.4	83.0	87.7	97.4	86.0	91.7	96.4	84.3	90.4
Average												
Summer 1988	**93.3**	**83.7**	**88.5**	**92.2**	**82.7**	**87.5**	**97.0**	**86.8**	**91.9**	**97.0**	**86.2**	**91.6**
Summer 1987	**93.3**	**84.0**	**88.7**	**92.0**	**82.7**	**87.4**	**96.8**	**86.8**	**91.8**	**97.1**	**86.5**	**91.9**

(a) Below 93 octane; (b) Below 90 octane; (c) 90 octane and above; (d) 90 octane and above, blended; (e) Regions were redefined and reduced in number by the API Products Committee in 1988; *Antiknock index. NS - No samples.
Source: Motor Gasolines, Summer 1988, National Institute for Petroleum and Energy Research, Bartlesville, Okla., published March 1989

• TRENDS

Red Coat Alert: BP's Gearing Up For Combat

An article in The Wall Street Journal pretty well confirms that BP America is gearing up for a frontal attack on the nation's biggest oil companies, which have been dominating gasoline markets for decades.

Not only that, the onset of the struggle probably isn't that far off—maybe 15 to 18 months down the road in the late summer or fall of 1990.

Keep your eye on BP, especially in the acquisition market. Don't be surprised if next summer it decides to buy a Phillips or a Unocal or a Marathon or a Conoco to fatten its presence in selected marketplaces, especially the Far West, then swing out in earnest.

BP recently made a swap with Mobil for a refinery and a string of service stations in the Pacific Northwest to penetrate that area for the first time. A nice annexation farther down the coast, like Los Angeles-based Unocal, would make it a formidable player not only in California—the biggest gasoline marketplace in the U.S.—but also enhance its physical strength just about everywhere else except the Rockies and the Corn Belt.

The Wall Street Journal article wasn't based, per se, on a BP expansion program. Rather it concentrated on the political developments, such as the recent promotion of Robert Horton to a deputy chairmanship of the mother house in London and his probable elevation to the chairmanship early next year when Sir Peter Walters retires. It included an interview with Horton.

Unlike some of his predecessors, Horton is gung ho on this country as few Britishers ever have been. He genuinely likes Americans and mixes well on all levels, from the working stiffs to the executive bluebloods. Horton was the man that BP London sent here in 1986 to become CEO of Standard of Ohio in the first leg of the 100% take-over that followed in the summer of 1987.

Horton returned to BP London in December 1987 to become in-house chairman of BP America. When he becomes the boss of bosses next year, he'll be the first BP chairman/CEO to have had marketing experience in the U.S., a love affair with its citizens and a firsthand depth of knowledge. He is only 49 years of age and is alive with zest.

Horton is seen by associates as a man who believes the corporate processes over there need more Americanization and development. Corporate BP is somewhat hamstrung at the moment, having been forced to pay $4-billion to buy back a substantial hunk of the 22% share that Kuwait got hold of as an "investment." BP management believes this debt should be reduced to prudent levels in about 18 months, shortly after Horton slides into the chairman's seat. That makes for an interesting coincidence in timing and acquisition-expansion plans.

Horton told the Journal he plans to return to the U.S. every six weeks or so. The idea seems that this pattern would continue when he becomes BP chairman. If the big boss takes the time to visit a marketplace that often, isn't it logical to presume this market is going to be on the front burner and boiling hot?

Horton was said to be an admirer of John D. Rockefeller, who founded Standard Oil Co. of Ohio in the 1870s and led it to become the nation's biggest and most powerful oil company. Horton had a portrait of Rockefeller hung in the Sohio-BP boardroom in Cleveland during his tenure there. Could there be possibly be a message in that?

At the moment, BP America has about 8,000 service stations in 26 states and is the 13th largest industrial corporation in the United States with assets of $23.5-billion and 43,000 employees. BP America is now engaged in a $200-million program to unify all of its American operations behind a BP logo, a chore that will be completed by 1991. That's a pretty solid base from which to launch an assault on the gasoline front-runners. Shell, another British-Dutch subsidiary, currently is the leader of the pack. Won't it be fun when the Red Coats chase each other up and down the pike for market dominance?

—by J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

FEBRUARY	**Gasoline (All types)**	**Leaded Regular**	**Unleaded Regular**	**Unleaded Premium**
U.S.City Avg.	$0.955	$0.886	$0.926	$1.100
Regions:				
Northeast	1.015	.921	.966	1.159
North Central	.946	.904	.919	1.099
South	.954	.889	.924	1.077
West	.910	.862	.899	1.057

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (Add 000 bbl.)

	3/31/89	**4/1/88**
Gasoline (Total)	232,466	229,766
Gasoline (Unleaded)*	159,385	144,337
Jet Kerosine	36,946	38,873
Distillates	95,268	91,258
Residual	40,731	41,999

**Included in gasoline total*
Source: American Petroleum Institute

Shell Takes Lead In Credit Card Sales; Amoco Has Most Cards In Circulation

Shell Oil Co., the nation's largest gasoline retailer last year in market share, was also king of the hill in terms of proprietary oil company credit card sales and total credit volume in 1988.

According to the Nilson Report, a newsletter for credit card executives in the petroleum and other industries, Shell billed out more than $3.25-billion to the company's cardholders and had a total of $3.6-billion in credit charges last year. Shell also sends out the most statements to active accounts each month (5.1-million). Amoco, however, has the most company cards in circulation—16-million to Shell's 15.3-million—and was second to Shell in total credit volume at almost $3-billion.

Overall, the 40 companies included in the report did over $21.8-billion in proprietary card sales last year, an increase of 4% over the previous tabulation. Total transactions remained steady at 1.46-billion last year as did the number of oil company proprietary cards (118-million).

Although they represent little over one fifth of the total, charges for gasoline outlet purchases have increased dramatically (up 37%) for third-party cards, the report says. Bank card volume is up 41% while volume for the Discover card jumped from $18.8-million to $256-million. Discover, of course, is one of the newer players in the plastic marketplace.

The Nilson Report is published monthly. For information, write P.O. Box 49936, Los Angeles, CA 90049.

Profile: 40 Oil Company Credit Cards in the U.S.—1988

(Add 000 in all categories)

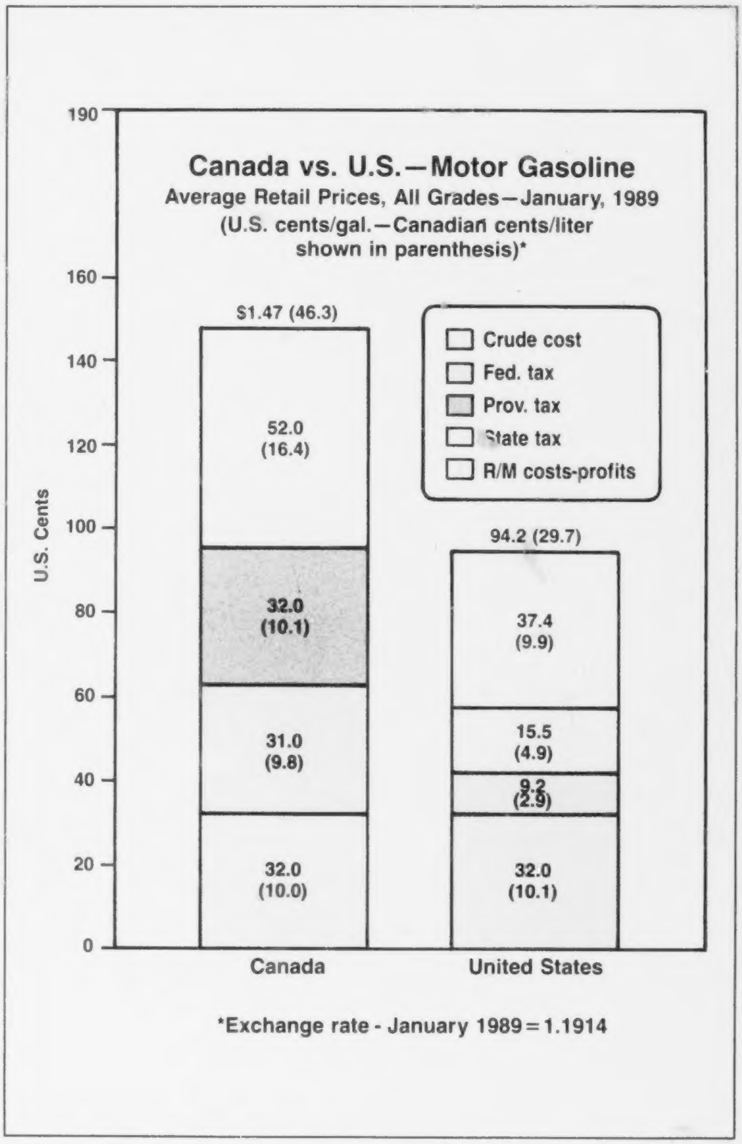
Company	Active Accounts(a)	Total Proprietary Accounts	Proprietary Sales Volume	Bank Card Sales Volume	T&E Sales Volume	Discover Cards	Other Cards(b)	Total Credit Sales(c)
Shell*	5,100	15,300	$3,250,000	$363,000	—	$1,500	$3,000	$3,617,500
Chevron	3,600	11,500	$2,600,000	$350,000	$10,000	$2,600	—	$2,962,600
Mobil*	3,600	14,000	$2,100,000	$300,000	$80,000	—	—	$2,480,000
Amoco*	3,450	16,000	$2,418,000	$357,000	$199,000	—	$5,000	$2,979,000
Exxon*	3,200	12,100	$2,450,000	$219,000	$5,000	$7,000	—	$2,681,000
Texaco*	3,150	13,300	$2,200,000	$400,000	$200,000	$50,000	$50,000	$2,900,000
Unocal	2,100	7,000	$1,850,000	$250,000	$68,000	$19,000	—	$2,187,000
Sohio	2,000	5,000	$1,200,000	$85,000	—	$12,000	—	$1,297,000
Phillips	1,100	4,500	$900,000	$200,000	—	$25,000	—	$1,125,000
Sunoco*	950	4,700	$750,000	$115,000	$30,000	$10,000	—	$905,000
Citgo	750	3,650	$295,000	$108,000	—	$3,500	—	$406,500
Gulf	478	3,325	$280,000	$63,500	—	$4,700	—	$348,200
Conoco	353	1,800	$305,000	$65,000	—	$76,000	—	$446,000
Diamond*	352	1,250	$290,000	$52,000	$3,200	$2,500	—	$347,700
Marathon	300	1,100	$223,000	$23,500	—	$3,500	—	$250,000
Total	180	945	$155,000	$110,000	—	$9,000	—	$274,000
Fina	161	722	$106,000	$30,500	$45	$5,100	$1,000	$142,645
Ashland	120	330	$100,000	$60,000	—	$11,000	—	$171,000
Kerr/McGee	114	565	$56,000	$15,000	—	$600	—	$71,600
Sinclair	84	357	$59,000	$18,000	—	$2,900	$1,000	$80,900
Crown	77	175	$42,000	$40,000	—	$1,000	$1,000	$84,000
Beacon	67	242	$45,000	$2,000	$35	$100	—	$47,135
Coastal	60	200	$35,000	$15,100	—	$1,600	—	$51,700
Tenneco	40	113	$27,000	$22,597	—	$5,016	$644	$55,257
Cenex	30	195	$21,000	$3,000	—	—	$80	$24,080
Getty	12	35	$20,000	$59,000	—	$495	—	$79,495
Tesoro	9	42	$7,000	$1,400	—	$110	—	$8,510
Emro	9	44	$23,000	$4,000	—	—	—	$27,000
Kent	6	23	$3,000	$1,000	—	—	—	$4,000
Aloha	5	23	$3,000	$1,000	—	—	—	$4,000
Sing	5	14	$4,000	$4,043	—	$60	—	$8,103
Canal	3	11	$2,000	—	—	—	—	$2,000
Gibble	3	10	$2,000	$680	—	$100	—	$2,780
MFA	2	5	$2,000	$2,800	—	$2,000	—	$6,800
Kwik Fill	2	5	$30,000	$4,000	—	—	—	$34,000
Certified	2	8	$2,000	—	—	—	—	$2,000
Illico	2	4	$1,000	$1,000	$30	$50	—	$2,080
Iowa	1	2	$2,000	$3,600	—	$25	$30	$5,655
Coast	1	1	$2,000	$1,700	—	$15	$35	$3,750
E-Z Serve	1	5	$1,000	$5,000	—	—	$3,000	$9,000
Totals (top 10)	**28,250**	**103,400**	**19,718,000**	**2,639,000**	**592,000**	**127,100**	**58,000**	**23,134,100**
Totals (top 20)	**31,142**	**117,414**	**21,317,000**	**3,174,500**	**595,245**	**245,900**	**60,000**	**25,672,645**
Grand total (40)	**31,478**	**118,599**	**21,861,000**	**3,356,420**	**595,310**	**256,471**	**64,789**	**26,133,990**

---

*Includes annual-fee cards. (a) Active accounts equal the number of statements mailed monthly. (b) Other cards include third-party fleet cards and government cards. (c) Total credit sales does not include $2.2-billion generated on general purpose cards at convenience stores that do not offer proprietary credit.

Source: The Nilson Report, January 1989.

Canadian Pump Prices Still More Than 50% Higher Than In United States



*Exchange rate - January 1989 = 1.1914

Canada is a land of many wonders, but low- priced gasoline is not one of them. According to the latest data available on average gasoline prices—from a January 1988 survey—Canadian motorists were shelling out 52.6¢ / gal. (calculated in U.S. currency) more at the pump than their American neighbors across the border. That's almost 56% higher than the average U.S. pump price at the time.

Approximately 73% of this price spread—about 38.4¢/gal.—was devoured by Canadian federal and provincial taxes. Those taxes, totaling 63¢/gal. (U.S.) in January 1988, devoured about 43% of the $1.47 average price of a Canadian retail gallon.

By contrast, the average sum of state and federal taxes on a U.S. gallon was 24.6¢ in January, according to the monthly Petroleum Product Market Report published by Energy, Mines and Resources (EMR) Canada. The pricing data is from Statistics Canada monthly price surveys. Prices shown in the adjacent bar chart have been converted from Canadian dollars (the January exchange rate was 1.1960) to U.S. dollars and the gallon amount is derived from the metric liter measure now commonly used in Canada (1 gal. = 3.78 liters).

The Canadian price was computed on a "major center" weighted average of regular leaded and regular and premium unleaded gasolines sold at both full service and self service stations. The U.S. price shown represents city average retail prices for all types of gasoline as published by the Dept. of Energy.

The EMR report offers a vivid illustration of some of the differences that affect Canadian and U.S. marketing. The contrast between retail postings for full service and self service gasoline is particularly striking. "For example, in Canada, the average full-serve/self-serve differential is about 1.0¢ a liter (approximately 3.2¢ a U.S. gal.)," EMR says, "while in the U.S. the differential is approximately 9¢ a liter (about 28¢) a U.S. gal.). Therefore, comparing the full-serve prices of the two countries would generally yield a smaller differential than would a comparison of self-serve prices."

The much narrower spread between full service and self service prices in Canada undoubtedly influences the higher percentage of patronage at full service pumps in that country. Slightly more than half of Canadian gasoline is sold at full service pumps versus only 20% in the U.S.

One Canadian marketer explains that the minimal full-serve/self-serve spread has helped independent marketers "find a niche in the marketplace," allowing them to offer full-service gasoline at self-service prices [*NPN*—Feb. '88, p28].

The EMR says that the larger component in Canada for refining/marketing costs and profits results from structural differences between the two markets. "Economies of scale in refining, distribution and retailing facilities favor U.S. refiners and marketers," the report explains.

Although crude costs were virtually the same for marketers in both countries in January, historically they have been higher in Canada. The differential in crude costs is the result of longer flow-through periods and the use of higher average quality crude in Canada, EMR says. Crude costs are figured as the average refinery acquisition costs lagged by 60 days in Canada and 45 days in the U.S.

The EMR's monthly reports present a wide range of pricing and tax data.

June 1989 $6.00

How Marketer Profits With Car Washes
Why Image Programs Are Creating Concern
Shell Leads In Share Of Market—Again

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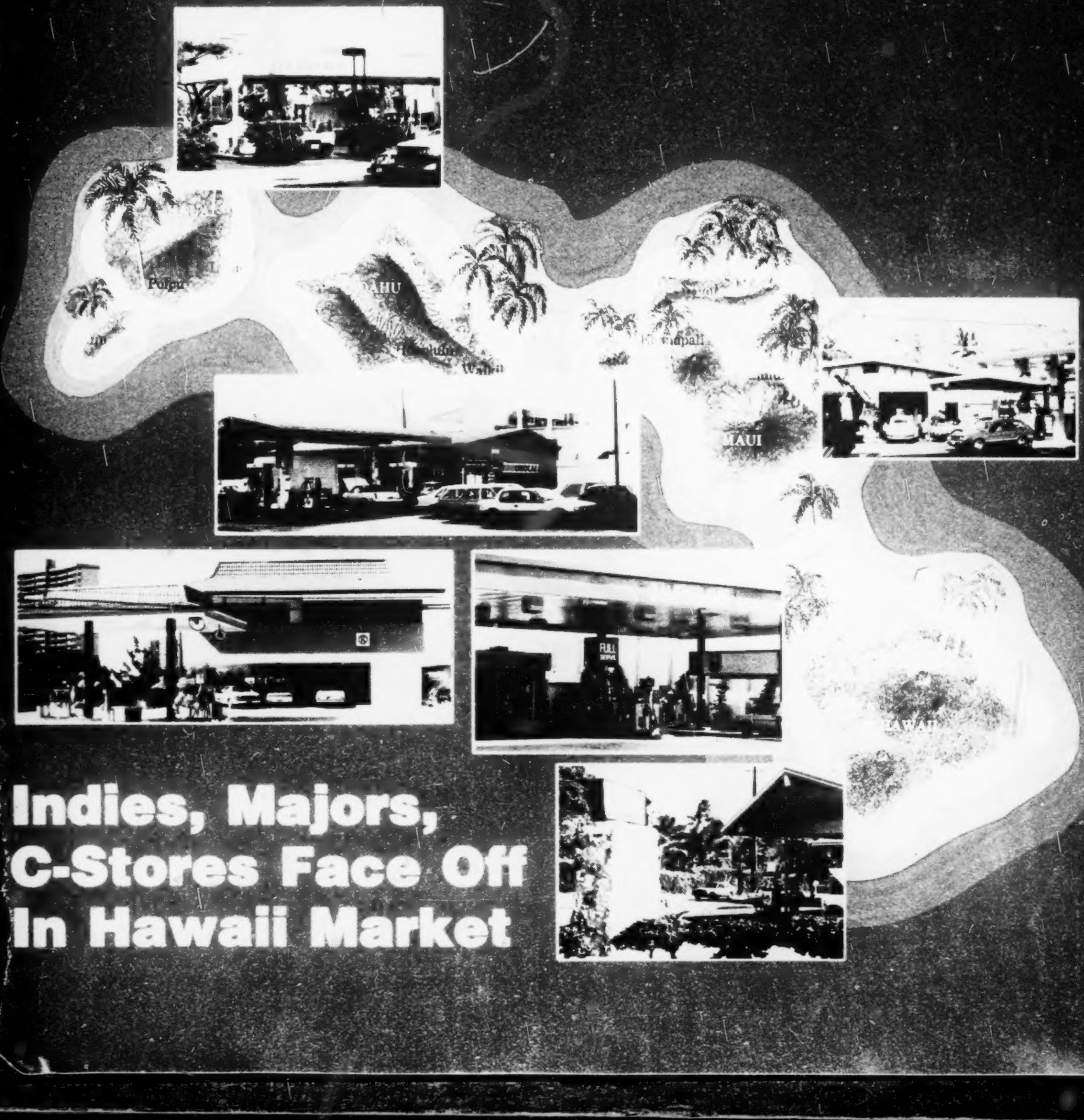

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Indies, Majors, C-Stores Face Off In Hawaii Market

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Editor's Viewpoint

Here we go again. A sharp increase in gasoline prices and the oil industry—refiners, marketers and corner stations—is under the gun. There's a giant hoax to gouge motorists. That's apparently how a lot of people, including some in the industry itself, see things.

The news media hasn't helped. Some coverage (mostly print media, but also on TV and radio) has been excellent, noting that the rise in gasoline prices just might have more to do with market forces than conspiracies to generate "obscene" profits. But reporting has generally lacked depth and analysis. There have been hints, directly or indirectly, that motorists are being bilked and the industry has been misrepresented. One talk show host claimed oil companies are blaming the Exxon Valdez oil spill for higher prices across the country. No one in the industry is dumb enough to say that without being accused of playing with a mail order lobotomy kit. The Exxon Valdez spilled about 10-million gal. of crude; a small percentage of what the U.S. uses in one day. The real damage was to the environment—and Exxon's image (the latest bit of black humor is that baby seals are now clubbing Exxon officials to death).

There have no doubt been instances of gouging, depending on how you define that term. If getting the highest price consumers will pay for a product is gouging, then virtually every industry in the country is guilty of it. A lot of people call that capitalism—and for all its faults, the options are worse. During the last period of shortages and gasoline lines, a dealer in a Chicago suburb wouldn't sell you gasoline unless you bought a quart of milk—at $5 a quart. Now, that's gouging. But when the gasoline lines disappeared, so did he.

There's always room for skepticism. But there's also room for facts. For instance, crude prices increased $7/bbl. from late last year through the end of this March, according to API. That would account for about 17c/gal. at the pump. Also, the price increases occurred on the verge of the peak driving season when demand increases. In fact, demand generally has increased—from 15-million b/d in the early '80s to about 17-million b/d today. Meanwhile, refinery utilization is near its peak. Couple these factors with such events as the explosion at a North Sea oil platform and the temporary shutdown of the Alaska pipeline because of a pumping station leak. Then add the EPA's edict to lower RVP, which will reduce gasoline production and require adding expensive additives.

Given all this, is it unreasonable to assume that refiners and marketers are adjusting prices based on legitimate concerns about supply and demand? Or is gouging always the only answer? Let's wait and see what happens as crude prices drop and demand slackens in the fall. *—Frank Victoria*

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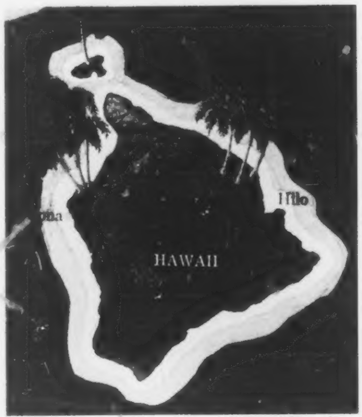


The relative tranquility of the Hawaiian petroleum market has been disrupted by aggressive independents and big convenience store marketers which are challenging the old guard major companies for a bigger share of the market. **Page 36**

Many have tried and some have succeeded in the volatile car wash business. Illinois marketer Feeney Oil Co. is one of the more notable successes, with substantial car wash profits plus some feedoff gasoline and C-store sales too. **Page 42**

ALEMITE
WHEEL ALIGNMENT
Ashland
Ashland
Ashland

There has been a big push in recent years behind image incentive provided by suppliers to jobbers for station improvements, but they haven't always worked out as well as some jobbers expected. **Page 48**

Asset Sales Boost Texaco, Arco Profits

Assets sales were especially helpful in the first quarter in enabling Texaco and Arco to show substantial earnings that more or less bucked the industry trend of soft quarterly earnings.

Minus signs were posted by Exxon, Mobil, Chevron, Shell, Amoco and others, mostly due to lagging wholesale prices that failed to reflect rising crude costs. Profitable quarters were posted by Conoco, Sun, Phillips, Marathon, Amerada Hess, Pennzoil and Kerr-McGee.

Texaco's sale of its Canadian interests brought more than $1-billion into the first-quarter kitty while Arco's sale of its 53% interest in Lyondell Petrochemical gave a one-time profit of more than $600-million.

Downstream earnings, except for Amoco, Sun and Marathon, were soggy. Here's the first-quarter scoreboard:

	1st Q 1989	1st Q 1988	% Chng.
Exxon	$1,270.0	$1,455.0	(12.7%)
Mobil	429.0	549.0	(21.9)
Chevron	313.0	653.0	(52.1)
Texaco	1,455.0	270.0	438.9
Shell	362.0	390.0	(7.2)
Amoco	458.0	469.0	(2.3)
BP America	NA	NA	--
Arco	704.0	401.0	75.6
Conoco	217.0	112.0	93.8
Sun	81.0	60.0	35.0
Phillips	190.0	130.0	46.2
Unocal	87.0	178.0	(51.1)
Marathon (*)	241.0	84.0	186.9
Coastal	NA	NA	--
Amerada Hess	220.2	65.6	235.7
Ashland (**)	(13.8)	20.6	--
Diamond Shamrock	NA	NA	--
Pennzoil	52.5	11.3	364.6
Kerr-McGee	63.9	10.3	520.4
Murphy	6.4	(6.4)	--
American Petrofina	48.8	30.4	60.5
Citgo	36.6	41.9	(12.6)

(*) Operating Income; (**) Second quarter, fiscal ends 9/30.

Downstream: Amoco, Sun, Marathon Look Good

Exxon	40.0	90.0	(55.6)
Mobil	76.0	101.0	(24.8)
Chevron	7.0	134.0	(94.8)
Texaco	34.0	93.0	(63.4)
Shell	113.0	130.0	(13.7)
Amoco	114.0	106.0	7.5
Arco (a)	742.0	184.0	303.2
Conoco	71.0	71.0	--
Sun	67.0	40.0	67.5
Phillips	51.0	49.0	4.1
Unocal	NA	NA	--
Marathon	66.0	29.0	127.6
Murphy	3.2	(0.9)	--

(a) Includes Lyondell Petrochemicals which Arco sold in March.

Rising Gasoline Prices For The Balance Of 1989

Soaring gasoline prices, with prospects that more will come and stay on the high side of usual fall declines, may mean unhappy confrontations between and among suppliers, distributors, retailers, motorists and consumer advocate groups for the next six months.

There are reasons for the spurt in gasoline prices—rising crude oil costs which had not been passed down to refined products, new volatility regulations, underground tank regulations and the fall deadline on million-dollar insurance policies, to cite a few.

But there also were questions about the gasoline escalations. Crude and product supplies are relatively normal and no shortages are in sight, even though the OPEC nations have succeeded in cutting back their output about 2-million b/d. Refinery throughputs are still in the 80% to 85% range, allowing room for more processing time if needed. But some refineries with high gasoline yields are running at or close to capacity.

Initially, there were suggestions the price increases were a result of the Exxon oil spill in Alaska. There were some supply disruptions, primarily on the West Coast due to that accident, but these lasted only a short time. There were calls for Congressional investigations and many states began inquiries of their own. Associations, particularly PMAA and API, were swamped with calls from industry people and consumers.

There is no question the rising crude oil costs surprised almost everybody. From October 1988 to March 1989, crude rose from $12/bbl. to $19/bbl. Speculator markets shot past $20 in April, abetted by problems in the North Sea which cut 500,000-b/d from world markets.

All this brought about $1-gal. prices for regular grades, leaded and unleaded, and $1.35 to $1.50-gal. postings for the 93 and 94 octanes in the premium fields in early May—the highest the industry has experienced since the early '80s. Memorial Day weekend traditionally inaugurates the summer driving season and usually triggers higher pump prices in lockstep with higher demand. RVP-inspired increases will show up too.

Assuming OPEC holds its current production quota and that crude stays in the $20/bbl. range, most suppliers and marketers feel that Fourth of July retail levels will prevail into fall and winter. Margins likely will remain the same. Cash flows will be a bit healthier for marketers, however, as the $1-plus retails generate more action for the tills.

Some industry people, notably Phil Chisholm, executive vice president of PMAA, fear the price hike wave may cause a revival of bootlegging and tax scams that reaped billions of dollars for the perpetrators a few years ago.

In Washington, meanwhile, talk is rising again that a big boost in the federal tax on gasoline could be a paramount need this fall to help solve the administration's budget-deficit problems. So far it's just talk, but resistance to the tax increase idea appears to be only lukewarm right now.

• CATCHING UP

Although oil companies are considered the goliaths of business and industry, only 17 are ranked in Business Week's annual roster of the Top 1,000. The BW list is composed of publicly-held firms and the rankings are based on the "market worth" of each firm. Excluded from the list are 100% subsidiaries such as Shell, Citgo, Conoco (DuPont), BP America and Marathon (USX). Interesting to note is that all of the oil companies have a BW market value less than their total assets. BW says the market valuation is the stock market value of common shares on March 17, 1989 multiplied by the total number of common shares outstanding. IBM is ranked No. 1, with a market valuation of $66.3-billion and assets of $73.0-billion. Exxon, with a market valuation of $59.0-billion and assets of $71.1-billion, is No. 2. Here are the oil companies in the magazine's Top 1,000:

BW Ranking	Company	BW Market Valuation	Total Assets
		(Billions of $)	
2	Exxon	$59.0	$71.7
10	Amoco	20.8	29.9
11	Mobil	20.4	38.8
14	Chevron	18.6	33.5
19	Arco	15.6	21.5
33	Texaco	2.9	26.3
88	Phillips	5.5	12.0
105	Unocal	4.9	9.5
151	Sun	3.8	11.9
188	Pennzoil	3.0	4.5
193	Amerada Hess	3.0	5.0
243	Ashland	2.3	4.3
281	Kerr-McGee	2.0	3.1
307	Coastal *	1.8	7.6
431	Murphy	1.2	2.0
510	Amer. Petro.	1.0	1.7
841	Diamond Shamrock Refg. & Mktg.	0.5	0.8

* Corporate, includes non-oil subsidiaries.

A Petroleum Marketers Association of America survey shows that most jobbers are mindful of existing federal regulation of aboveground storage tanks and only a small faction (6.7%) are without a formal written spill contingency plan. PMAA says future AST legislation will be an asset if it is geared to facilities where the tanks pose the largest risks as indicated by tank size, age and of construction.

A Waco, Texas-based company is pushing an environmental control device it says cuts heating, ventilating and air conditioning costs dramatically. The system, which involves a process called "cogeneration," converts fuel to electricity more efficiently than conventional methods. The cogeneration system, a method that produces both electric and thermal (steam) energy, converts 80-85% of the fuel used into the two types of energy. Conventional methods only convert 30% of the fuel into energy, says the Waco-based AskCorp.

Insurance companies are formulating ways to offer pollution liability coverage in light of developing state tank funds. Federated Insurance, for example, added a "coordination of benefits" endorsement that will fill in coverage gaps left before and after state funds kick in. Although hesitant to set standards until more state funds are implemented, Federated expects that as state funds become operational, "it will be possible to have clear definitions of what is covered and write insurance around the state funds." Meanwhile, marketer-owned insurance company Petromark has reduced its liability 50% through an agreement with Lloyd's, London, in which Petromark will cover the first $500,000/occurrence and $1-million/aggregate and Lloyd's will cover the second $500,000/occurrence, $1-million aggregate.

The Petroleum Marketers Assn. of America, the Society of Independent Gasoline Marketers of America and the American Petroleum Institute settled on a model underground tank bill for states which each agency believes it can support. PMAA says two pillars of the bill are its revenue sources—a single tank registration fee and a surcharge or tax—and a graduated deductible schedule. For the first three years, the bill calls for $10,000 from the tank owner for cleanup and another $10,000 for third-party liability. It also has a retroactive provision for leaks between May 1986 and December 1988 in which state funds foot the bill for cleanup costs beyond $50,000. PMAA says that no states will accept the bill without some modification, but that the essence of the measure is important to the petroleum industry.

Shell Oil Co. has blended an additive into all of its petroleum grades nationwide. The Houston major says the additive meets the industry's toughest criteria for intake system deposit control and can deter engine valve accumulation while still retaining fuel injector cleanliness. The additive was first offered east of the Rockies where Shell vends three unleaded grades and 10 days later was mixed into Shell's three products west of the Rockies, where one leaded grade is available.

General Motors supports blended fuels, but concedes the company still has a way to go concerning methanol, says a GM executive. Recent EPA volatility rules are behind GM's stance on alcohol blends and oxygenated fuels, say some reports. Still, methanol remains a problem for the automaker, says Dr. Richard Klimisch, executive director for environmental activities at GM, noting cold start and lubrications problems have yet to be solved.

Domestic crude production fell to a 30-year low this March says the API—7,652,000-b/d, 8.2% less than March 1988. API discounted the Exxon oil spill. "Although the unusually large decline reflected in part developments related to the tanker grounding...almost 300,000-b/d of the decrease was accounted for by falling production in the lower 48." API says total imports (petroleum products and crude) continued to increase, but at a slower pace.

• TRENDS

Census Suggests Larger Service Station Market

It will be late this year or early in 1990 before all of the facts and figures are in, but there are already some good indications that the oil industry has been short-changing itself in counting the number of places that sell gasoline to the general public via conventional retail pumps.

In 1987—as it did in 1982, 1977, 1972 and so on—the U.S. Census Bureau made its quinquennial survey of the retail trades, i.e., the number of places doing business as gasoline stations, department stores, drugstores, food stores, apparel shops, etc., etc.

The state-by-state reports from the 1987 census figures are now beginning to emerge from the Census Bureau. All 50 states, plus a special wrap-up edition, are scheduled to be released by early 1990.

Some of the service station numbers contained in the first reports are a bit surprising. If the numbers yet to come all follow the same pattern, the oil industry will have a real quandary on its hands next winter trying to determine how big it really is.

For example, a sister office to the Census Bureau has estimated the service station population eroded about 20% between 1982 and 1987. This estimate placed the total of retail service stations at 112,000 at the end of 1988. The first six or seven census reports do not support that much of a decline, however. Six show declines which range from 3.7% to 18.5%. And one actually shows an increase. A weighted average for all seven states now accounted for is 9%—only half as much as the sister office estimated. Therefore, if the decline holds below the 10% level, the population figure has to be higher than the 112,000 being used currently.

Keep in mind too that these Census Bureau numbers involve only "true" service stations, i.e., places that get 50% or more of their revenues from the sale of gasoline and oil products and have one or more employees. This automatically excludes C-stores which sell gasoline, garages, car washes, etc.

This, of course, is where the population count gets all botched up. When the Census Bureau made its 1972 count (226,500 stations in that one), it was a reasonably accurate figure—a universe, so to speak—because service stations were about the only places in town where motorists could get their tanks refilled.

There were only a handful of C-stores with retail pumps back then, not 40,000 to 50,000 as there are now. The same thing applied to garages, dealerships, car washes, mass merchandisers, etc. Few and far between.

The 1972 census numbers are not comparable to those of 1982 and 1987, however. That's because an error in 1982 nose-counting procedures restricted those studies to service stations with payrolls. They ignored "Moms and Pops" operations and all small stations that lacked formal payrolls.

The 1987 survey likewise counted only the payroll types. They did do something about the uncounted non-payroll stations, however, and might issue some data on them in 1990. But that's not a sure thing yet either. Consequently, a Census Bureau universe figure which is comparable to the 1972 findings isn't exactly the most likely of prospects.

Supporting the feeling that the gasoline station field may be as much as twice as big as currently estimated is an informal study that NPN compiled last spring regarding the East Coast in the spring. NPN collected official and semi-official data from 16 East Coast states [see East Coast Region, page 13]. The count included all places that retailed gasoline—service stations, C-stores, everything. The total—72,000 outlets—was about double the number accredited to the states by the projections which were based on Census Bureau data. If the count is that far off for only 16 states, just how far off could it possibly be for the nation as a whole?

—By J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

MARCH	**Gasoline (All types)**	**Leaded Regular**	**Unleaded Regular**	**Unleaded Premium**
U.S. City Avg.	$0.974	$0.907	$0.940	$1.115
Regions:				
Northeast	1.012	.920	.960	1.161
North Central	.959	.913	.929	1.105
South	.968	.899	.925	1.081
West	.968	.906	.952	1.122

Source: U.S. Dept. of Labor, Bureau of Labor Statistics.

STOCKS (add 000 bbl.)

	4/28/89	**4/29/88**
Gasoline (total)	222,875	229,746
Gasoline (unleaded) *	154,680	145,987
Jet Kerosine	38,605	37,953
Distillates	96,119	94,616
Residual	41,451	40,916

** Included in gasoline total.*

Source: American Petroleum Institute.

Full Service Car Washes Show Highest Revenue Gains

Average gross revenue per car at both full service and exterior-only car washes continues to rise, although the full service facilities show considerably higher percentage increases, according to "Professional Carwashing & Detailing Magazine."

According to the publication, the national average gross revenue per car for full service washes in 1988 was $6.90, a 6.8% increase over the previous year and nearly a 16% gain from 1986. The average price of a full service wash last year increased 40¢ from 1987 to $6.37.

Extra services revenue per car and annual wash volume, however, did not fare as well. The extra services figure for 1988 was $1.69, slightly lower than the year before, and annual volume for 1989—71,900—was just above 1987 and about the same as 1986.

For exterior-only conveyor washes, the average gross revenue per car in 1988 was $4.09, just 2.8% higher than 1987. The $3.82 average price of an exterior-only wash, however, was only a 2.7% increase. The annual volume of 60,900 cars was, as with the full service conveyors, only slightly higher than in 1987 and about the same as in 1986.

The car wash publication's figures are based on a survey it conducted among 215 car wash operators, who washed nearly 20-million vehicles in 1987. Approximately half of the poll participants owned full service conveyors, with one-quarter offering exterior-only conveyors and the balance non-conveyor washes.

Among the trends with full service conveyor washes discerned by the magazine was increasing use of frictionless equipment. It also notes that operating expenses and the typical starting wage are increasing. It also says higher volume washes are facing greater competition.

The major trend at exterior-only conveyor washes is that about 41% of them now report having self-serve wand bays. Moreover, the wand washes contribute, on average, about one-quarter of the location's total revenue. Competition for this group is also increasing, although unlike full service facilities, it is the low volume operations that are encountering the highly competitive situations. At the same time, total expenses for this type of wash are 4.6% higher than the previous year, although managerial salaries, typically considered the biggest expense, declined slightly.

SERV
CAR WASH
NO TRUCKS
WARNING STOP ENGINE NO SMOKING
THE BOSS TOLD ME TO CHANGE THE SIGN SO I DID
95
99
112

Gasoline is sold at about 50% of all exterior-only car wash facilities. Units without gasoline usually charge more for their washes and aren't open as often.

The magazine survey indicates that gasoline is sold at about half of all exterior-only conveyor washes. It also notes that locations without gasoline charge higher prices for their washes and are open less often.

Other figures for both full service conveyor and exterior-only washes developed by the magazine's survey follow.

Full Service Conveyors

General Averages:
- Twenty-one percent have coin-op vacuums.
- Eight percent have self service bays.
- Sixty-three percent have a detail shop.

Cleaning Method:

• Cloth only	62%
• Bristle only	7%
• Cloth and bristle	12%
• Frictionless	9%
• Friction and frictionless	10%

Labor:

• Starting wage	$3.66
• Have commission system	74%
• Have job opening(s)	60%
• Employment term	10 mos.
• Labor cost per car	32%

Pricing:
On-Line Services:

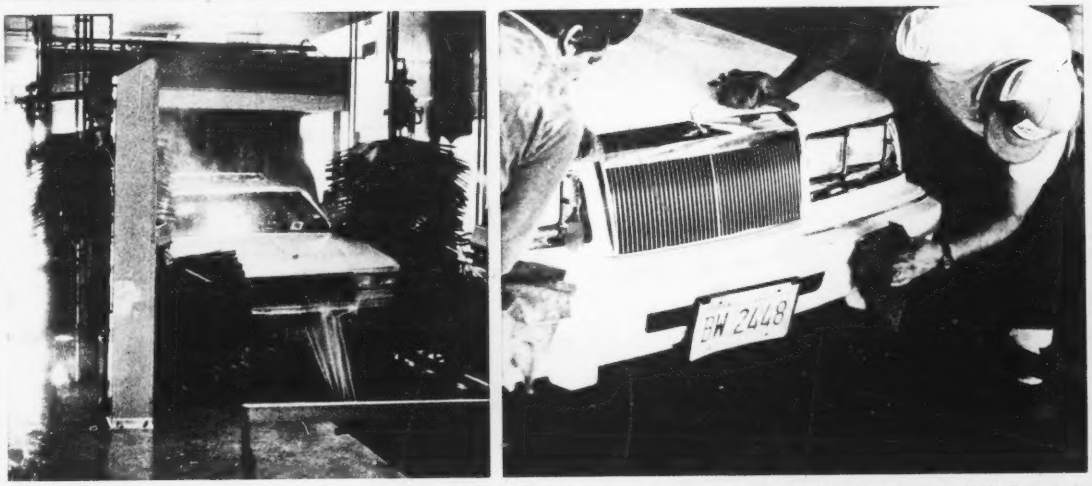
• Exterior wash	$4.57
• Full-serve wash	$6.37
• Hot wax	$1.81
• Polymer wax	$2.89
• Foam wax	$3.11
• Foam and buff	$3.47

for car wash equipment may reach $140,000.

Another car wash in the Decatur location, a stationary rollover, is also being deliberated by Feeney Oil.

Rural tradition

The company that Martin Feeney founded in El Paso, Ill. in 1924 was created as an adjunct to a greenhouse and hatchery business. At the outset, it was essentially a supplying jobbership (five stations in the early years) and did not have its first company-op until the thirties. When Martin died in 1939, his son, Charles Feeney, Sr., took over for what was to be about a 45-year stint as head



Although soft cloth is still popular, there is an apparent trend with full service conveyor washes to have frictionless equipment (left). Full service conveyorized washes rack up the large percentage increases in revenue. However, labor costs are a bigger factor (right).

• Combo	$11.72

Off-Line Services:

• Exterior vinyl	$5.75
• Interior vinyl	$5.66
• Carpet shampoo	$19.17
• Upholstery	$33.75
• Wax/hand buff	$43.02
• Wax/auto buff	$42.33
• Engine cleaning	$20.09
• Polymer protectant	$126.47
• Deluxe detail	$104.91

Typical Expenditures:

• Soaps and waxes	$21,000
• Impulse merchandise	$13,800
• Vending products	$4,200
• Damage claims	$6,000
• Officer/manager salaries	$53,700
• Clerical salaries	$38,700
• On-line labor salaries	$117,000
• Commissions/bonuses	$10,500
• Advertising/promotions	$15,300
• Equipment leases	$11,500
• Rent	$42,700
• Maintenance and repair	$16,100
• Depreciation	$28,700
• Insurance	$14,700
• Professional services	$4,800
• Taxes/licenses	$12,500
• Utilities	$17,700
• Water/sewer	$8,100
• Automobile/travel	$3,700
• Interest/bank expenses	$24,600
• Credit	$5,000
• Office expenses	$3,700
• Phone	$2,800
• Waste disposal	$1,400
• Miscellaneous	$6,200

Exterior Conveyors

General Averages:

- Ninety-three percent have coin-op vacuums.
- Monthly revenue per vacuum is $182.
- Forty-one percent have self service wand bays.
- There are 4.2 bays per location.
- Nineteen percent have a detail shop.

Cleaning Method:

• Cloth only	60%
• Bristle only	14%
• Cloth and bristle	10%
• Frictionless	10%
• Friction and frictionless	5%

Labor:

• Starting wage	$3.93
• Have commission system	47%
• Have job openings	42%
• Term of employment	1 yr.
• Labor cost per car	24%

Pricing:
On-Line Services

• Wash	$3.82
• Hot wax	$1.27
• Polymer wax	$2.55
• Foam wax	$2.97
• Foam and buff	$2.76
• Combo special	$8.16
• Air fragrance	.84
• Rust inhibitor	$1.36
• Floor mats	.92
• Whitewalls	$1.35

Typical Expenditures:

• Soaps and waxes	$15,400
• Officer/manager salaries	$35,800
• Clerical salaies	$17,000
• On-line labor salaries	$32,300
• Commissions/bonuses	$6,200
• Advertising/promotions	$6,100
• Equipment leases	$15,300
• Rent	$27,800
• Maintenance and repair	$9,100
• Utilities	$12,600
• Water/sewer	$6,100
• Depreciation	$19,600

of the jobbership. Chuck, Tom and Barb brought the family-held business in 1983 from their father who was retiring.

Except for a 1965 buyout of a Bloomington-Normal Shell jobber who had a couple outlets as well as industrial lube and fuel oil accounts, Feeney matured slowly until the last 10 years.

Through the '80s the marketer began to assert itself more at the retail level and today has three "Thrifty Mart" C-stores (including the Morton stationary rollover) and three service bay outlets as well as the Bloomington soft cloth tunnel wash.

According to Tom Feeney, "We're not

$50.00

ANNUAL ISSUE

NPN

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1989

fact book

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Looking Things Over

Here are a few observations culled from the mountain of facts, figures and trends that comprise this year's NPN Factbook:

—If oil companies were ballplayers, it would be said that most enjoyed a "career year" in 1988. Many of the larger companies had increases in both total and downstream earnings that were nothing short of phenomenal (See page 17). Exxon's domestic downstream profits leaped by almost 2,000% last year. Mobil, the No. 2 company, improved its downstream earnings by 370%. Texaco, fighting back from its Pennzoil nightmare, had a downstream profit increase of 750% in 1988. Each of these three companies took in more than $1-billion in refining and marketing profits last year.

—The momentum of '88 appears to be spilling over into 1989. One usually reliable barometer or oil industry activity is the trend in world crude oil prices (See page 119). From a low average of a little over $10 a barrel in late summer and early fall last year, the price soared about $5 a barrel in a few short months to a February 1989 average of $15.60. As everyone knows that price continues to spin upward and, combined with other supply/demand factors, will undoubtedly result in still higher oil company sales and earnings.

—Trouble-on-the-Horizon department: The latest forecast from Independent Petroleum Assn. of America (Page 149) says annual petroleum imports could exceed domestic crude oil production for the first time in 12 years. The U.S. is "rapidly approaching over dependence on imported oil," IPAA says.

—Are major convenience store chains losing ground to oil marketers in the battle for gasoline sales? Could be, says West Coast C-store marketer John Roscoe, noting that the traditional C-store gasoline units are not keeping pace with modern and upgraded oil company units (Page 134).

—In an ocean of industry numbers published every year, there is one statistic that continues to elude capture; namely, accurate, documentable information on the number of retail gasoline outlets in the U.S. So be sure to catch Executive Editor J. Richard Shaner's thought-provoking essay on the subject beginning on page 126.

—Donald M. Smith

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Ranking The Top 22 Marketing Companies (a)

	Total Assets		Gross Revenues		Net Income		Sales Ranking Among Top 500	
	1988	1987	1988	1987	1988	1987	1988	1987
Exxon	1	1	1	1	1	1	3	2
Mobil	2	2	2	2	2	4	6	5
Chevron	3	3	4	4	4	5	11	11
Amoco	4	6	5	5	3	3	12	14
Shell	5	5	6	6	9	6	13	13
Texaco	6	4	3	3	8	22	8	7
BP America	7	8	8	7	5	2	22	22
Tenneco (c)	—	9	9	9	10	21	24	21
Arco	8	7	7	8	6	7	17	18
Phillips	9	11	11	11	11	19	31	32
Conoco (b)	10	13	10	10	14	10	NR	NR
Unocal	11	12	12	13	13	12	32	46
Marathon (b)	12	14	14	14	12	8	NR	NR
Sun	13	10	13	12	22	9	48	43
Coastal	14	15	16	15	17	14	54	57
Amerada Hess	15	16	17	17	19	11	110	87
Pennzoil	16	19	21	21	7	18	202	206
Ashland	17	17	15	16	15	13	55	60
Kerr-McGee	18	18	19	19	20	17	157	156
American Petrofina	19	21	20	20	18	16	164	161
Murphy	20	20	22	22	21	20	253	235
Citgo (b)	21	22	18	18	16	15	NR	NR

(a) As ranked by Fortune 500 April, 1989; (b) Neither Conoco or Marathon, as wholly-owned subsidiaries, issue full financial statements as they are not ranked by Fortune; The same applies to Citgo, which is a privately-owned corporation; (c) Tenneco has withdrawn from petroleum marketing; NR - Not ranked by Fortune 500.

Exxon Keeps Big Lead in Assets, Amoco Moves Up to Fourth

In 1988, Exxon firmed up its position as the No. 1 company in the U.S. petroleum business, with total assets at year's end that exceeded the combined assets of the No. 2 and No. 3 largest oil firms—Mobil and Chevron. That was pre-Valdez, of course, but that unhappy occurrence is unlikely to cause even a minor disruption in Exxon's continued commanding position among U.S. oil marketers.

Not that Exxon grew all that much last year, asset-wise. The company's total assets increased a miniscule 0.3% to 74.3-billion in 1988, compared to a 6.6% increase in 1987. Still, Exxon's total was bigger than the combined assets of Mobil ($38.8-billion) and Chevron ($34-billion) by more than a billion dollars. This was mainly because the assets of those two companies experienced a modest shrinkage in 1988, by 3.6% and 0.4% respectively.

One company that added significantly to its corporate worth last year was Chicago-based Amoco, which improved its asset ranking from No. 6 to No. 4 with almost a 20% increase over the previous year (see table on the following page). Major components of this asset growth included the acquisitions by Amoco of Canada's Dome Petroleum along with certain Tenneco properties.

Texaco, now leaner and meaner following its Pennzoil ordeal and several major asset sales, dropped from fourth to sixth in the overall asset ranking, lowering its corporate value by more than $7-billion to $26.3-billion. However, the company also bounced back from a dismal last place ranking in net income in 1987 to a very respectable No. 8 position on the 1988 chart.

(Continued on next page)

Oil Company Rankings by Marketers With

	Assets (a) (in billions of dollars)				
	1988	1987	1986	1985	1984
Exxon	**$74,293**	$74,042	$69,484	$69,160	$63,278
Mobil	38,820	40,272	39,412	41,752	**41,851**
Chevron	33,968	34,101	34,853	38,889	**45,404**
Amoco	**29,919**	25,122	23,706	25,198	25,734
Shell	27,169	**27,571**	26,214	26,528	23,729
Texaco	26,337	33,773	34,940	37,703	**37,774**
BP America	22,452	**22,807**	20,169	18,330	17,487
Tenneco (b)	—	22,322	18,021	**20,437**	18,205
Arco	21,514	22,890	21,604	20,279	21,952
Phillips	11,968	12,111	12,403	14,045	**16,955**
Conoco	9,745	9,146	9,073	**14,115**	13,497
Unocal	9,508	10,062	10,246	**10,797**	10,203
Marathon	8,966	9,091	**11,022**	10,074	9,949
Sun	8,616	12,580	12,396	**12,923**	12,789
Coastal	7,865	7,989	7,887	**8,258**	3,295
Amerada Hess	5,372	5,305	4,914	6,219	**6,353**
Pennzoil	**4,480**	2,805	3,369	3,300	3,243
Ashland	**4,254**	4,074	3,805	3,928	4,037
Kerr McGee	3,123	3,132	3,090	3,702	3,771
American Petrofina	**2,356**	1,836	1,777	1,817	1,706
Murphy	2,068	2,067	1,980	2,661	2,685
Citgo	1,343	1,191	1,209	1,274	1,246

(a) **Boldface** totals indicate peak years of individual companies.
(b) Tenneco has withdrawn from petroleum marketing.

(Asset Values, continued)

At the same time, Pennzoil, flush with its Texaco settlement cash, moved from 19th to 16th place in the rankings with a phenomenal 59.7% asset growth. Pennzoil also jumped from No. 18 to No. 7 in the net income ranking.

With Tenneco's withdrawal from petroleum marketing last year, most of the companies down the ladder automatically moved up a rung or two. Notable among these were the improvements of Phillips (No. 11 to 9), Conoco (13 to 10), Marathon (14 to 12) and American Petrofina (21 to 19). Petrofina's asset worth increased 28.3% in 1988. Sun, however, dropped three spots to No. 13 following the divestiture of some marginal E&P properties and some other downsizing moves.

Although several companies improved their rankings in 1988, many saw their total asset base shrink somewhat for the year. Thirteen out of the 21 firms listed in these tables ended the year with asset totals smaller than at the beginning of the year. Depressed crude oil prices throughout much of 1988 undoubtedly contributed to this decline, much the same as the crude price "crash" lowered the asset values of virtually every company in the 1986 rankings.

You can always expect to see half a dozen or so major oil companies among the top 20 in total sales in the annual Fortune magazine ranking of the 500 leading U.S. corporations. Last year was no exception, with Exxon (No. 3), Mobil (No. 6), Texaco (No. 8), Chevron (No. 11), Amoco (No. 12), Shell (No. 13) and Arco (No. 17) all firmly entrenched among the elite 20. Except for Amoco, however, the Fortune 500 rankings of most of those companies slipped a notch in 1988.

Among the other majors, Unocal made the biggest jump in the Fortune 500 derby for 1988, moving from No. 46 all the way up to No. 32. Phillips, Sun, Ashland, Pennzoil and Coastal also improved their Fortune 500 rankings in the past year.

Since Tenneco is no longer a major player in the oil business, the company is not shown in the rankings for 1988. However, Tenneco's prior year rankings and assets are included in order to keep the pecking order of the companies in proper sequence.

Assets of $1-billion or More

	% Change				Ranking by Year				
1983	'88 vs. '87	'87 vs. '86	'86 vs. '85	'85 vs. '84	1988	1987	1986	1985	1984
$62,963	0.3%	6.6%	0.5%	9.3%	1	1	1	1	1
37,022	(3.6)	2.2	(5.6)	(0.2)	2	2	2	2	3
24,010	(0.4)	(2.2)	(10.4)	(14.3)	3	3	4	4	2
25,805	19.1	6.0	(5.9)	(2.1)	4	6	6	6	5
22,169	(1.5)	5.2	(1.2)	11.8	5	5	5	5	6
27,199	(22.0)	(3.3)	(7.3)	(0.2)	6	4	3	3	4
16,362	(1.6)	13.1	10.0	4.8	7	8	8	9	9
17,994	—	2.7	(11.8)	12.3	—	9	9	7	8
23,282	(6.0)	6.0	6.5	(7.6)	8	7	7	8	7
13,094	(1.2)	(2.4)	(11.7)	(17.2)	9	11	11	11	10
NA	6.5	(29.6)	(35.7)	4.6	10	13	10	10	11
9,288	(5.5)	(1.8)	(5.1)	5.8	11	12	14	13	13
9,332	(1.4)	(17.5)	9.4	1.3	12	14	13	14	14
12,466	(31.5)	1.5	(4.1)	1.0	13	10	12	12	12
3,338	(1.6)	1.3	(4.5)	150.6	14	15	15	15	18
6,217	1.3	8.0	(21.0)	(2.1)	15	16	16	16	15
3,517	59.7	(16.7)	2.1	1.8	16	19	19	19	20
4,108	4.4	7.1	(3.1)	(2.7)	17	17	17	18	17
3,806	(0.3)	1.4	(16.5)	(1.8)	18	18	20	21	19
1,399	28.3	3.3	(2.2)	6.5	19	21	22	22	22
2,792	0.0	4.4	(25.6)	(0.9)	20	20	21	20	21
1,392	12.8	(1.5)	(5.1)	2.2	21	22	23	23	23

Note: Diamond Shamrock split itself into upstream and downstream companies in 1986 and the downstream entity, Diamond Shamrock Refining and Marketing, had assets of less than $1-billion in each of the last two years. The company, therefore, has been removed from the above table and the ranking assigned to the company (see "Ranking by Year") has been deleted.

Assets—Peak Years vs. 1988

(in billions of dollars)

	Peak Year	Peak Year Total	1988	% Chng. '88 vs. Peak
Exxon	1988	$74.293	$74.293	0.0%
Mobil	1984	41.851	38.820	(7.8)
Chevron	1984	45.404	33.968	(33.7)
Amoco	1988	29.919	29.919	0.0
Shell	1987	27.571	27.169	(1.5)
Texaco	1984	37.774	26.337	(43.4)
BP America	1987	22.807	22.452	(1.6)
Tenneco	1985	20.437	(a)	(a)
Arco	1983	23.282	21.514	(8.2)
Phillips	1984	16.955	11.968	(41.7)

(in billions of dollars)

	Peak Year	Peak Year Total	1988	% Chng. '88 vs. Peak
Conoco	1985	$14.115	$9.745	(44.8%)
Unocal	1985	10.797	9.508	(13.6)
Marathon	1986	11.022	8.966	(22.9)
Sun	1985	12.923	8.616	(50.0)
Coastal	1985	8.258	7.865	(5.0)
Amerada Hess	1984	6.353	5.372	(18.3)
Pennzoil	1988	4.480	4.480	0.0
Ashland	1988	4.254	4.254	0.0
Kerr-McGee	1983	3.806	3.123	(21.9)
American Petrofina	1988	2.356	2.356	0.0
Murphy	1982	2.990	2.068	(44.6)
Citgo	1981	6.049	1.343	(b)

(a) Tenneco has withdrawn from petroleum marketing.

(b) Not comparable. Citgo was taken over in 1982 and many of its assets were absorbed elsewhere.

Oil Company 1988 Annual Reports

Financial

	Gross Sales-Operating Revenues (add 000)			Net Income (add 000)			Net Income % of Gross Sales	
	1988	1987	% Change	1988	1987	% Change	1988	1987
Amerada Hess Corp.	$4.263.544	$4.784.598	(10.9)	$124.217	$229.860	(46.1)	2.9	4.8
American Petrofina	2.634.706	2.484.000	6.1	132.900	83.284	59.5	5.0	3.4
Amoco Corp.	21.150.000	20.174.000	4.8	2.063.000	1,360.000	51.7	9.7	6.7
Ashland Oil, Inc.	8.196.000	6.990.000	17.3	184.000	133.000	38.3	2.2	1.9
Atlantic Richfield Co.	18.868.000	17.579.000	7.3	1.583.000	1.224.000	29.3	8.4	7.0
BP America	15.411.000	16.396.000	(6.0)	1.673.000	2.104.000	(20.5)	10.9	12.8
Chevron Corp.	27.722.000	28.106.000	(1.4)	1.768.000	1.250.000	41.4	6.4	4.4
Citgo Petroleum Corp.	4.109.700	3.952.000	4.3	165.600	85.700	99.1	4.0	2.2
Coastal Corp.	8.186.500	7.428.900	10.2	157.400	113.100	39.2	1.9	1.5
Conoco, Inc.	11.552.000	11.097.000	4.1	391.000	277.000	41.2	3.4	2.5
Diamond Shamrock Corp.	1.803.900	1.740.800	3.6	53.500	1.600	3,244.0	3.0	0.1
Exxon Corp.	88.600.000	83.300.000	6.4	5.300.000	4.800.000	10.4	5.9	5.8
Getty Petroleum Corp.*	1.040.755	1.335.754	(22.1)	28.418	15.015	86.8	2.7	1.1
Marathon Oil Corp.	9.000.000	9.100.000	(1.1)	506.000	442.000	14.5	5.6	4.9
Mobil Oil Corp.	54.361.000	51.387.000	5.8	2.087.000	1.348.000	54.8	3.8	2.6
Murphy Oil Corp.	1.525.000	1.518.000	0.5	38.752	(43.638)	—	2.5	—
Phillips Petroleum Corp.	11.304.000	10.721.000	5.4	650.000	35.000	1.757.0	5.8	0.3
Shell Oil Corp.	21.399.000	21.199.000	0.9	1.239.000	1.230.000	0.7	5.8	5.8
Sun Co., Inc.	9.744.000	9.482.000	2.8	7.000	348.000	(9.798)	0.1	3.7
Texaco Inc.	35.138.000	35.344.000	(0.5)	1.304.000	(4.135.000)	—	3.7	—
Unocal Corp.	8.853.000	8.466.000	4.6	480.000	181.000	165.7	5.4	2.1

*Fiscal year is Jan. 31, 1988-Jan. 31, 1989

Operating

	Net Crude Production b/d				Refinery Crude Runs b/d				Domestic Refined Product Sales b/d	
	Domestic		Foreign		Domestic		Foreign			
	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987
Amerada Hess Corp.	67.965	68.548	76.388	67.696	296.000	371.000	—	—	379.000	411,000
American Petrofina	177.000	162.000	—	—	167.000	164.000	—	—	—	—
Amoco Corp.	409.000	394.000	400.000	408.000	882.000	842.000	62.000	53,000	953.000	918,000
Ashland Oil, Inc.	—	—	—	—	320.669	319.089	—	—	355.683	347,633
Atlantic Richfield Co.	674.200	665.000	63.600	63.200	397.800	377.600	—	—	418.800	406,200
BP America	857.600	851.300	3.200	2.300	629.000	622.500	—	—	811.700	844.000
Chevron Corp.	484.000	507.000	486.000	482.000	1,407.000	1.388.000	500.000	490.000	1.631,000	1,591,000
Citgo Petroleum Corp.	—	—	—	—	68.100	61.400	197.000	179.400	493.000	448.000
Coastal Corp.	10.200	11.000	—	—	266.000	230.000	—	—	742.000	647.200
Conoco, Inc.	98.794	101.007	295.346	295.178	381.084	373.870	219.441	198.510	502.343	479.250
Diamond Shamrock Corp.	—	—	—	—	156.292	141.593			175.523	165.747
Exxon Corp.	760.000	756.000	1.046.000	990.000	968.000	1,026.000	2.074,000	1,955,000	1,113,000	1,057,000
Getty Petroleum Corp.*	—	—	—	—	—	—	—	—	—	—
Marathon Oil Corp.	137.000	142.000	69.000	63.000	469.800	452.500	—	50.000	559.000	527.000
Mobil Oil Corp.	329.000	338.000	361.000	336.000	650.000	645.000	996.000	918.000	927.000	865.000
Murphy Oil Corp.	15.554	15.904	32.150	33.182	92.704	88.155	23.711	21.139	98.885	96.546
Phillips Petroleum Corp.	284.000	287.000	124.000	113.000	501.000	497.000	—	—	540.000	513.000
Shell Oil Corp.	463.000	488.000	68.000	54.000	999.000	1.019.000	—	—	1.314,000	1,352,000
Sun Co., Inc.	104.300	130.500	51.900	50.300	531.900	488.400	—	—	774.600	778,100
Texaco Inc.	524.000	540.000	466.000	516.000	907.000	836.000	970.000	1.156.000	1,175,000	1,159,000
Unocal Corp.	166.000	164.000	91.000	93.000	408.000	417.000	—	—	520.000	479.000

Quarterly and Full-Year Earnings—1988 vs. 1987

(Add 000,000)

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Full Year 1988	Full Year 1987	% Change
Exxon	$1,455.0	$1,200.0	$1,225.0	$1,380.0	$5,260.0	$4,840.0	8.7%
Mobil	505.0	487.0	557.0	469.0	2,018.0	1,348.0	49.7
Chevron	653.0	520.0	420.0	175.0	1,768.0	1,250.0	41.4
Amoco	469.0	667.0	552.0	375.0	2,063.0	1,360.0	51.7
Shell	1,245.0	263.0	352.0	212.0	2,072.0	1,230.0	68.5
Texaco	242.0	527.0	239.0	296.0	1,304.0	(4,135.0)	—
BP-America	630.0	679.0	590.0	420.0	2,319.0	2,424.0	(4.3)
Tenneco (a)	63.0	154.0	7.0	598.0	822.0	(218.0)	—
Arco	401.0	400.0	391.0	391.0	1,583.0	1,224.0	29.3
Phillips	130.0	170.0	215.9	135.0	650.9	35.0	1,759.7
Conoco (b)	171.0	62.0	71.0	153.0	457.0	277.0	65.0
Unocal	174.8	64.0	97.0	141.0	476.8	181.0	163.4
Marathon (c)	84.0	120.0	183.0	123.0	510.0	442.0	15.4
Sun	60.0	(201.0)	72.0	76.0	7.0	348.0	(98.0)
Coastal (d)	46.5	30.6	9.2	71.1	157.4	113.1	39.2
Amerada Hess	65.6	(23.5)	15.8	66.3	124.2	229.9	(46.0)
Pennzoil	20.7	1,388.7	39.3	36.1	1,484.8	45.5	3,163.3
Ashland (e)	71.7	20.6	56.9	66.2	215.4	133.4	61.5
Kerr-McGee	10.3	35.8	30.5	33.4	110.0	81.0	35.8
American Petrofina	30.4	39.4	35.2	32.9	137.9	83.3	65.5
Murphy	(6.4)	9.4	10.1	25.7	38.8	(43.6)	—
Citgo	41.9	33.9	29.9	60.0	165.7	85.7	93.3

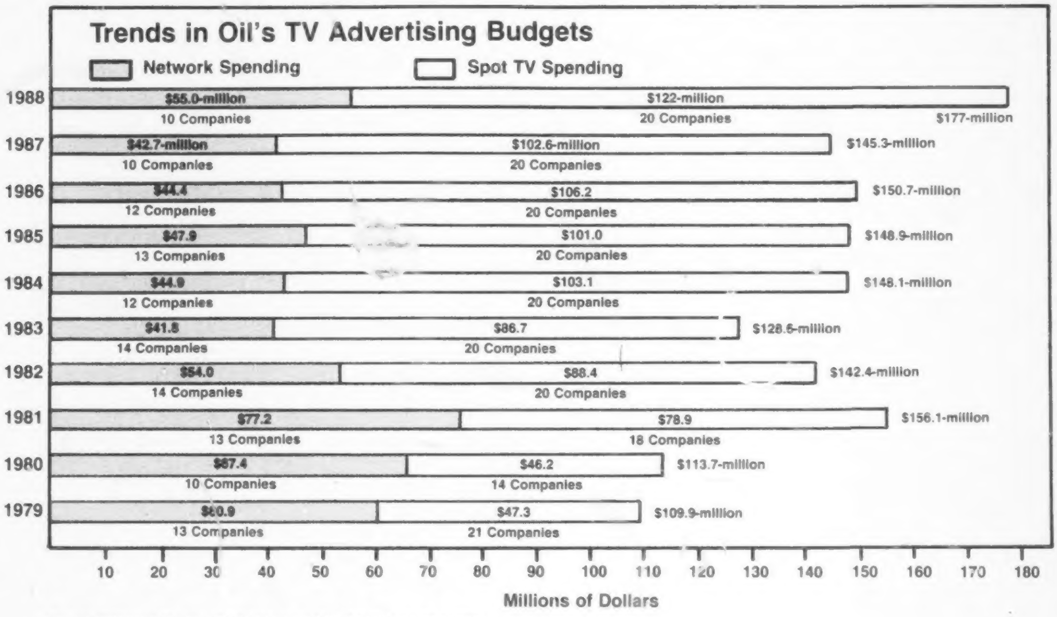
(a) Includes Tenneco Oil; note also, Tenneco Inc. was proceeding with the liquidation of its Tenneco Oil Co. Div. in the third quarter and consummated the liquidation in the fourth quarter and abandoned petroleum marketing;
(b) Includes operating income (versus net);
(c) Operating income;
(d) Includes oil company operations;
(e) Figures reflect Ashland's fiscal year (concluding Sept. 30) totals.

Downstream Earnings in 1988: Striking Recovery from 1987

(Add 000,000)

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Full Year 1988	Full Year 1987	% Change
Exxon	$431.0	$281.0	$537.0	$555.0	$1,804.0	$509.0	254.4%
domestic	94.0	100.0	220.0	255.0	669.0	32.0	1,990.6
foreign	337.0	181.0	317.0	300.0	1,135.0	477.0	137.9
Mobil	217.0	260.0	219.0	395.0	1,091.0	232.0	370.3
domestic	101.0	89.0	143.0	221.0	554.0	123.0	350.4
foreign	116.0	171.0	76.0	74.0	437.0	109.0	300.9
Chevron	199.0	123.0	243.0	57.0	622.0	191.0	225.7
domestic	134.0	91.0	186.0	160.0	571.0	117.0	388.0
foreign	65.0	32.0	57.0	(103.0)	51.0	74.0	(31.1)
Texaco	153.0	215.0	325.0	410.0	1,103.0	130.0	748.5
domestic	92.0	108.0	202.0	245.0	647.0	(36.0)	—
foreign	61.0	107.0	123.0	165.0	456.0	166.0	174.7
Amoco (worldwide)	169.0	206.0	319.0	266.0	960.0	216.0	344.4
Shell	130.0	103.0	152.0	124.0	509.0	224.0	127.2
BP-America	NA	312.0	NA	NA	NA	NA	—
Arco	87.0	72.0	121.0	88.0	368.0	150.0	145.3
Phillips (a)	74.0	98.0	130.0	169.0	471.0	201.0	134.3
Conoco	77.0	75.0	99.0	112.0	363.0	177.0	105.1
Sun	40.0	79.0	87.0	73.0	279.0	46.0	506.5

(a) Pre-tax operating income.



Source: Television Bureau of Advertising and NPN Factbook 1980-1988

Network TV Spending

	(Add 000)				(Add 000)		
Company	**1988**	**1987**	**% Chng.**	**Company**	**1988**	**1987**	**% Chng.**
Texaco	$15.561	$ 4.366	256	Mobil	$3.720	$2.987	25
Quaker State	9.429	12.324	(23)	Unocal	1.568	1.673	(6)
Pennzoil	9.364	11.288	(17)	Phillips	1.397	1.631	(14)
Burmah (Castrol)	7.095	8.172	(13)	Chevron	138	459	(70)
Ashland	6.796	8.589	(21)	Exxon	65	—	—
				Totals	**55,133**		

Spot TV Spending

Exxon	$18.585	$20.570	(10)	Ashland	$4.636	$5.349	(13)
Chevron (Gulf)	17.186	16.966	1	Conoco	2.962	3.094	(4)
Amoco	12.489	14.416	(13)	Pennzoil	2.525	597	323
Texaco	11.471	8.549	34	Citgo	2.378	398	497
Mobil	10.718	8.534	26	BP (Sohio)	1.870	999	87
Unocal	8.830	6.462	37	Am. Petrofina	1.462	2.214	(34)
Shell	5.922	12.956	(54)	Atl. Richfield	1.182	3.069	(61)
Burmah (Castrol)	5.897	4.857	21	Amer. Hess	1.176	1.284	(8)
Sun	5.713	4.522	26	Marathon	1.050	692	52
Phillips	5.051	6.402	(21)	Quaker State	852	1.064	(20)

Source: Television Bureau of Advertising from Broadcast Advertisers Reports

Companies Chalk Up Record TV Budgets

Even discounting inflationary factors, the money invested by 30 oil companies in 1988 in network and spot television advertising is impressive. According to the Television Bureau of Advertising, the companies spent a record $177-million last year to promote their products and services on television. This represents an increase of 22% over the previous year's expenditures of $150.7-million and 14% over the industry's previous high-water mark in TV outlays—$156.1-million in 1981.

In all likelihood, tens of millions more were spent in purely local advertising and promotional programs like those of oil heat firms, but there is no easy way to keep track of those totals.

The bulk of the expenditures, almost 70%, tracked by the Television Bureau of Advertising went into TV's "spot market" while the balance went to the networks. TBA defines the spot market as primarily regional commercials and show sponsorship, and network advertising as that placed on the three big syndicates—ABC, CBS and NBC.

Television generally gets about three out of every four dollars spent by the oil companies. This includes radio, network and spot, and print media such as newspapers, magazines and circulars.

As the graph at top indicates, spot television has been getting the lion's share of the annual budgets, reflecting a basic switch by the companies to more target-market advertising and promotions.

Current Automotive Registrations

	Automobiles			Trucks and Buses			All Motor Vehicles			Motorcycles
State	**Registered 1987**	**Estimated 1988**	**% Chng.**	**Registered 1987**	**Estimated 1988**	**% Chng.**	**Registered 1987**	**Estimated 1988**	**% Chng.**	**Estimated 1988**
Alabama	2,633,403	2,758,000	4.7	913,180	894,000	-2.1	3,546,583	3,652,000	3.0	50,000
Alaska	225,141	225,000	-0.	132,260	129,000	-2.5	357,401	354,000	-1.0	9,000
Arizona	1,712,441	1,783,000	4.1	704,616	715,000	1.5	2,417,057	2,498,000	3.3	57,000
Arkansas	935,599	961,000	2.7	509,392	520,000	2.1	1,444,991	1,481,000	2.5	17,000
Califonia	15,714,903	16,473,000	4.8	4,579,081	4,808,000	5.0	20,293,984	21,281,000	4.9	661,000
Colorado	2,220,941	2,227,000	0.3	812,413	853,000	5.0	3,033,354	3,080,000	1.5	117,000
Connecticut	2,448,501	2,498,000	2.0	163,548	166,000	1.5	2,612,049	2,664,000	2.0	62,000
Delaware	383,174	385,000	0.5	107,320	112,000	4.4	490,494	497,000	1.3	9,000
Dist. of Col.	250,882	252,000	0.5	17,029	16,000	-6.0	267,851	268,000	0.1	2,000
Florida	8,521,630	8,822,000	3.5	2,161,960	2,224,000	2.9	10,683,590	11,046,000	3.4	213,000
Georgia	3,597,364	3,708,000	3.1	1,428,856	1,522,000	6.5	5,026,220	5,230,000	4.1	80,000
Hawaii	603,809	614,000	1.7	85,936	84,000	-2.3	689,745	698,000	1.2	24,000
Idaho	579,462	626,000	8.0	367,792	393,000	6.9	947,254	1,019,000	7.6	44,000
Illinois	6,242,279	6,428,000	3.0	1,420,043	1,448,000	2.0	7,662,322	7,876,000	2.8	248,000
Indiana	2,748,356	2,774,000	0.9	959,495	962,000	0.3	3,707,851	3,736,000	0.8	95,000
Iowa	1,936,924	1,987,000	2.6	762,503	779,000	2.2	2,699,427	2,766,000	2.5	208,000
Kansas	1,501,752	1,512,000	0.7	686,287	694,000	1.1	2,188,039	2,206,000	0.8	80,000
Kentucky	1,811,098	1,832,000	1.2	909,099	930,000	2.3	2,720,197	2,762,000	1.5	36,000
Lousiana	1,953,327	1,984,000	1.6	937,907	943,000	0.5	2,891,234	2,927,000	1.2	39,000
Maine	694,596	698,000	0.5	233,219	226,000	-3.1	927,815	924,000	-0.4	41,000
Maryland	2,718,947	2,769,000	1.8	589,674	600,000	1.8	2,208,621	3,369,000	1.6	51,000
Massachusetts	3,392,975	3,433,000	1.2	493,877	498,000	0.8	3,886,852	3,369,000	1.1	110,000
Michigan	5,481,096	5,556,000	1.4	1,463,570	1,524,000	4.1	6,944,666	7,080,000	1.9	224,000
Minnesota	2,466,150	2,546,000	3.2	705,631	717,000	1.8	3,171,781	3,263,000	2.9	150,000
Mississippi	1,344,842	1,341,000	-0.3	416,024	413,000	-0.7	1,760,866	1,754,000	-0.4	24,000
Missouri	2,667,130	2,665,000	-0.1	1,045,298	1,088,000	4.1	3,712,428	3,753,000	1.1	66,000
Montana	415,728	413,000	-0.7	234,034	231,000	-1.3	649,762	644,000	-0.9	22,000
Nebraska	866,933	887,000	2.3	438,013	445,000	1.6	1,304,946	1,332,000	2.1	30,000
Nevada	588,613	624,000	6.0	223,357	233,000	4.3	811,970	857,000	5.5	17,000
New Hampshire	687,873	724,000	5.3	186,138	190,000	2.1	874,011	914,000	4.6	33,000
New Jersey	4,957,598	5,048,000	1.8	562,159	593,000	5.5	5,519,757	5,641,000	2.2	58,000
New Mexico	802,823	799,000	-0.5	481,883	477,000	-1.0	1,284,706	1,276,000	-0.7	37,000
New York	8,361,175	8,764,000	4.8	1,231,557	1,270,000	3.1	9,592,732	10,034,000	4.6	226,000
North Carolina	3,491,660	3,542,000	1.4	1,378,564	1,474,000	6.9	4,870,224	5,016,000	3.0	62,000
North Dakota	383,246	387,000	1.0	267,212	267,000	-0.1	650,458	654,000	0.5	24,000
Ohio	7,001,690	7,177,000	2.5	1,519,707	1,601,000	5.3	8,521,397	8,778,000	3.0	288,000
Oklahoma	1,931,117	1,991,000	3.1	956,361	946,000	-1.1	2,887,478	2,937,000	1.7	71,000
Oregon	1,657,107	1,689,000	1.9	585,549	571,000	-2.5	2,242,656	2,260,000	0.8	78,000
Pennsylvania	6,180,970	6,331,000	2.4	1,461,236	1,538,000	5.3	7,642,206	7,869,000	3.0	194,000
Rhode Island	543,768	554,000	1.9	110,056	118,000	7.2	653,824	672,000	2.8	25,000
South Carolina	1,782,844	1,793,000	0.6	583,300	610,000	4.6	2,366,144	2,403,000	1.6	31,000
South Dakota	409,571	418,000	2.1	264,225	271,000	2.6	673,796	689,000	2.3	31,000
Tennessee	3,194,605	3,304,000	3.4	831,960	831,000	-0.1	4,026,565	4,135,000	2.7	77,000
Texas	8,398,231	8,330,000	-0.8	3,900,131	3,879,000	-0.5	12,298,362	12,209,000	-0.7	215,000
Utah	753,776	760,000	0.8	360,179	359,000	-0.3	1,113,955	1,119,000	0.5	45,000
Vermont	329,946	345,000	4.6	112,531	121,000	7.5	442,477	466,000	5.3	19,000
Virginia	3,614,251	3,623,000	0.2	1,013,736	1,106,000	9.1	4,627,987	4,729,000	2.2	67,000
Washington	2,702,000	2,801,000	3.7	1,126,067	1,122,000	0.4	3,828,067	3,923,000	2.5	138,000
West Virginia	821,035	831,000	1.2	372,958	385,000	3.2	1,193,993	1,216,000	1.8	24,000
Wisconsin	2,378,474	2,373,000	-0.2	717,745	714,000	-0.5	3,096,219	3,087,000	-0.3	189,000
Wyoming	281,936	290,000	2.9	196,149	203,000	3.5	478,085	493,000	3.1	21,000
Total	137,323,632	140,655,000	2.4	41,720,817	42,813,000	2.6	179,044,449	183,468,000	2.5	4,719,000

Source: Federal Highway Administration, Table SS87-3, published October, 1988.

Estimated Licensed Drivers, by Sex and States, 1987 and 1988

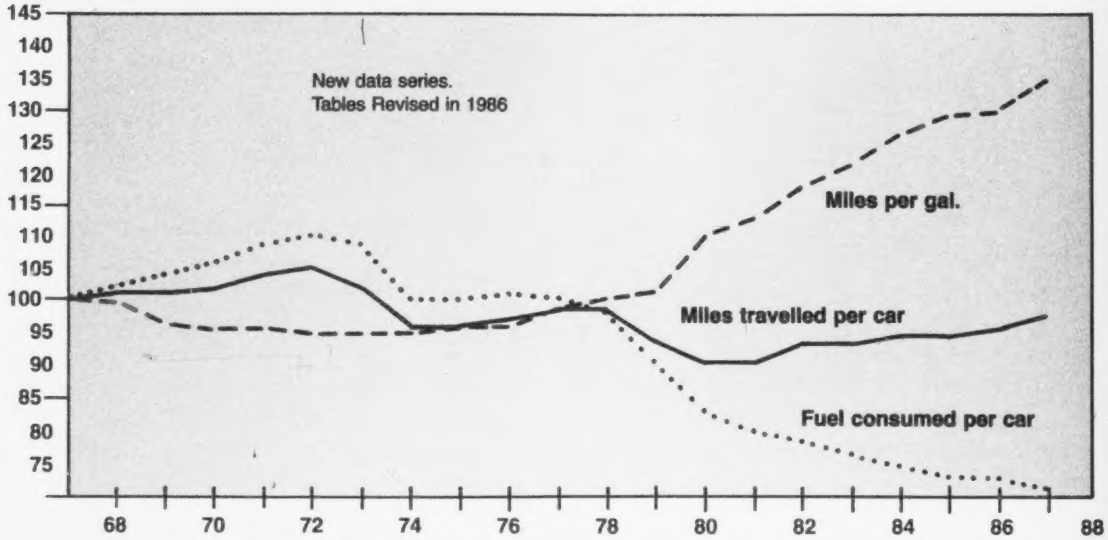
(Add 000)

	1987 (Actual)				1988 (Estimated)			% Change Total Drivers	
State	Male	Female	Total	% Male Drivers	Male	Female	Total	1988 vs 1987	1987 vs 1977
Alabama	1,441,719	1,331,917	2,773,636	51.98	1,484	1,371	2,855	2.9	30.7
Alaska	165,604	134,396	300,000	55.20	164	133	297	-1.0	32.9
Arizona	1,170,439	1,102,424	2,272,863	51.50	1,184	1,116	2,300	1.2	60.1
Arkansas	868,040	789,755	1,657,795	52.36	874	795	1,669	0.7	18.2
Califonia	9,812,576	8,750,350	18,562,926	52.86	10,097	9,004	19,101	2.9	27.3
Colorado	1,234,651	1,075,698	2,310,349	53.44	1,244	1,083	2,327	0.7	23.0
Connecticut	1,200,496	1,146,172	2,346,668	51.16	1,208	1,154	2,362	0.7	22.7
Delaware	233,149	229,365	462,514	50.41	236	233	469	1.4	20.5
Dist. of Col.	211,646	177,189	388,835	54.43	213	178	391	0.6	11.2
Florida	4,576,493	4,016,569	8,593,062	53.26	4,689	4,116	8,805	2.5	30.7
Georgia	2,145,310	2,069,973	4,215,283	50.89	2,210	2,133	4,343	3.0	33.2
Hawaii	341,638	286,389	628,027	54.40	349	293	642	2.2	17.6
Idaho	357,588	333,305	690,893	51.76	361	337	698	1.0	16.1
Illinois	3,672,491	3,513,579	7,186,070	51.11	3,720	3,559	7,279	1.3	6.6
Indiana	1,853,370	1,736,803	3,590,173	51.62	1,852	1,735	3,587	-0.1	3.3
Iowa	895,385	947.153	1,842,538	48.60	879	930	1,809	-1.8	-7.2
Kansas	835,562	842,856	1,678,418	49.78	840	847	1,687	0.5	-5.1
Kentucky	1,213,368	1,124,637	2,338,005	51.90	1,236	1,146	2,382	1.9	17.3
Louisiana	1,338,633	1,275,792	2,614,425	51.20	1,323	1,260	2,583	-1.2	17.6
Maine	433,713	437,003	870,716	49.81	445	448	893	2.6	30.4
Maryland	1,539,843	1,469,633	3,009,476	51.17	1,562	1,491	3,053	1.4	19.0
Massachusetts	2,044,446	1,899,760	3,944,206	51.83	2,068	1,922	3,990	1.2	8.0
Michigan	3,215,324	3,163,399	6,378,723	50.41	3,237	3,185	6,422	0.7	3.7
Minnesota	1,276,463	1,194,717	2,471,180	51.65	1,287	1,204	2,491	0.8	-4.9
Mississippi	906,651	869,213	1,775,864	51.05	922	883	1,805	1.6	12.9
Missouri	1,769,497	1,701,961	3,471,458	50.97	1,787	1,718	3,505	1.0	12.0
Montana	331,142	272,909	604,051	54.82	336	277	613	1.5	17.1
Nebraska	541,147	528,001	1,069,148	50.61	540	526	1,066	-0.3	4.3
Nevada	373,612	345,446	719,058	51.96	380	351	731	1.7	50.2
New Hampshire	402,874	382,717	785,591	51.28	414	393	807	2.7	34.5
New Jersey	3,172,257	2,849,823	6,022,080	52.68	3,235	2,906	6,141	2.0	40.2
New Mexico	539,571	498,063	1,037,634	52.00	547	504	1,051	1.3	34.0
New York	5,431,785	4,597,252	10,029,037	54.16	5,498	4,653	10,151	1.2	11.8
North Carolina	2,192,005	2,126,718	4,318,723	50.76	2,234	2,168	4,402	1.9	23.7
North Dakota	222,203	211,843	434,046	51.19	221	211	432	-0.5	9.9
Ohio	3,787,958	3,614,458	7,402,416	51.17	3,803	3,629	7,432	0.4	13.0
Oklahoma	1,087,977	1,075,171	2,163,148	50.30	1,103	1,091	2,194	1.4	15.4
Oregon	1,067,849	959,705	2,027,554	52.67	1,088	978	2,066	1.9	15.6
Pennsylvania	4,022,458	3,661,678	7,684,136	52.35	4,072	3,707	7,779	1.2	9.4
Rhode Island	327,597	320,290	647,887	50.56	332	325	657	1.4	7.9
South Carolina	1,109,055	1,086,293	2,195,348	50.52	1,128	1,105	2,233	1.7	26.1
South Dakota	247,322	238,045	485,367	50.96	248	238	486	0.1	3.2
Tennessee	1,599,786	1,557,040	3,156,826	50.68	1,627	1,583	3,210	1.7	21.6
Texas	5,812,302	5,341,170	11,153,472	52.11	5,869	5,393	11,262	1.0	36.1
Utah	507,231	498,711	1,005,942	50.42	517	509	1,026	2.0	30.5
Vermont	208,169	193,919	402,088	51.77	213	198	411	2.2	21.2
Virginia	2,058,488	1,994,815	4,053,303	50.79	2,108	2,043	4,151	2.4	23.7
Washington	1,642,433	1,514,310	3,156,743	52.03	1,683	1,552	3,235	2.5	34.9
West Virginia	693,678	609,726	1,303,404	53.22	697	612	1,309	0.4	-4.7
Wisconsin	1,675,668	1,572,538	3,248,206	51.59	1,686	1,582	3,286	0.6	14.4
Wyoming	179,957	159,193	339,150	53.06	180	159	339	0.0	9.7
Total	83,988,619	77,829,842	161,818,461	51.90	85,230	78,967	164,197	1.5	17.2
Percent Change From Prior Year	1.4	1.5	1.5	—	—	—	—	—	—

Source: Federal Highway Administration, Table SS87-5, published October 1988

Passenger Car Efficiency Index

(Index: 1967 = 100)



Source: Energy Information Administration, Monthly Energy Review, 1988

Passenger Car Energy Indicators—1967-1987

(1967 = 100)

	Passenger Cars Only						Passenger Cars and Motorcylces		
	Avg. Fuel Used per Car		Avg. Miles Traveled per Car		Avg. Miles per gal. of Fuel				
Year	Gal.	Index	Miles	Index	Miles	Index	Number Registered (000)	Gasoline Consumed (000,000 gal.)	Miles Traveled (000,000)
1987	515	72.0	9,883	98.2	19.17	136.2	142,209	70,984	1,367,000
1986	526	73.6	9,608	95.5	18.27	129.9	140,693	71,403	1,310,921
1985	525	73.4	9,560	95.0	18.20	129.4	137,308	69,450	1,269,651
1984	536	75.0	9,558	95.0	17.83	126.7	134,334	73,283	1,274,074
1983	553	77.3	9,475	94.2	17.14	121.8	131,723	73,156	1,229,697
1982	566	79.2	9,428	93.7	16.65	118.3	129,500	72,848	1,191,623
1981	576	80.6	9,186	91.3	15.94	113.3	129,123	71,718	1,124,843
1980	591	82.7	9,141	90.9	15.46	109.9	127,448	73,375	1,129,887
1979	653	91.3	9,403	93.5	14.41	102.4	125,750	80,233	1,162,528
1978	701	98.0	9,835	97.8	14.04	99.8	121,717	83,775	1,194,287
1977	716	100.1	9,879	98.2	13.80	98.1	118,711	80,677	1,141,166
1976	723	101.1	9,785	97.3	13.53	96.2	115,170	78,847	1,098,147
1975	716	100.1	9,690	96.3	13.52	96.1	111,679	76,457	1,050,472
1970	760	106.3	10,272	102.1	13.52	96.1	92,095	65,784	900,992
1967	715	100.0	10,060	100.0	14.07	100.0	82,367	55,110	774,203

(a) Data for this table were revised by The Federal Highway Administration in 1986 and this automatically replaces all prior data.

Mileage and Fuel Consumption Data—1987

	Personal Vehicles						
	Passenger Cars	Motor-cycles	All Personal Passenger Vehicles	Buses	All Passenger Vehicles	Trucks and Combinations	All Motor Vehicles
Fuel consumed (million gal.)	70,787	197	70,984	904	71,888	55,859	127,748
Average per vehicle (gal.)	515	40	499	1,502	503	1,359	695
Average miles per gal.	19.17	50	19.26	5.89	19.09	9.88	15.06
Vehicles registered (thousands)	137,323	4,886	142,209	602,055	142,811	41,119	183,930
Average miles traveled	9,883	2,017	9,613	8,846	9,610	13,423	10,462
Average miles traveled (millions):							
Main rural roads	—	—	307,345	1,365	308,170	165,130	473,840
Local rural roads	—	—	194,543	1,657	196,200	111,707	307,907
Urban streets	—	—	865,158	2,304	867,462	275,118	1,142,092
Total travel in 1987	**1,357,191**	**9,855**	**1,367,047**	**5,326**	**1,372,372**	**551,955**	**1,924,327**
Total travel in 1986	**1,301,214**	**9,397**	**1,310,611**	**5,073**	**1,315,684**	**519,188**	**1,834,872**

Source: Federal Highway Administration, Table VM-1, published October 1987; all 1986 data are preliminary.

1987 Relationships by Population and Drivers

State	Resident Population (1,000)	Licensed Drivers per 1,000 Resident Population	Registered Motor Vehicles per 1,000 Resident Population	Gal. of Fuel per Vehicle	Miles per Gallon	Annual Miles per Vehicle	Vehicle Miles per Licensed Driver
Alabama	4,083	679	869	683	15.46	10,553	13,403
Alaska	525	571	681	617	17.69	10,912	13,000
Arizona	3,386	671	714	787	16.67	13,127	13,960
Arkansas	2,388	694	805	1,028	12.32	12,699	11,042
California	27,663	671	734	685	16.29	11,151	12,191
Colorado	3,296	701	920	559	15.91	8,890	11,673
Connecticut	3,211	731	813	599	17.11	10,251	11,410
Delaware	644	718	762	782	15.86	12,408	13,159
D.C.	622	625	431	740	16.99	12,574	8,662
Florida	12,023	715	889	598	14.66	8,765	10,897
Georgia	6,222	677	808	816	14.70	11,998	14,303
Hawaii	1,083	580	637	524	19.98	10,465	11,493
Idaho	998	692	949	562	15.26	8,571	11,751
Illinois	11,582	620	662	697	14.18	9,887	10,542
Indiana	5,531	649	670	871	13.66	11,900	12,290
Iowa	2,834	650	953	587	13.14	7,708	11,293
Kansas	2,476	678	[illegible]34	687	13.69	9,397	12,250
Kentucky	3,727	627	730	782	14.26	11,146	12,988
Louisiana	4,461	586	648	797	13.28	10,583	11,704
Maine	1,187	734	782	776	14.94	11,604	12,365
Maryland	4,535	664	730	700	15.77	11,030	12,126
Massachusetts	5,855	674	664	690	15.78	10,884	10,726
Michigan	9,200	693	755	664	16.41	10,901	11,869
Minnesota	4,246	582	747	691	16.04	11,087	14,231
Mississippi	2,625	677	671	852	13.45	11,456	11,360
Missouri	5,103	680	727	845	13.82	11,685	12,496
Montana	809	747	803	794	15.65	12,426	13,368
Nebraska	1,594	671	819	694	14.46	10,032	12,244
Nevada	1,007	714	806	817	12.65	10,340	11,678
New Hampshire	1,057	743	827	632	16.61	10,488	11,669
New Jersey	7,672	785	719	714	14.48	10,339	9,477
New Mexico	1,500	692	856	760	15.49	11,766	14,568
New York	17,825	563	538	686	14.89	10,216	9,772
North Carolina	6,413	673	759	771	14.54	11,211	12,643
North Dakota	672	646	968	644	13.56	8,734	13,088
Ohio	10,784	686	790	660	14.07	9,289	10,693
Oklahoma	3,272	661	882	682	16.05	10,946	14,611
Oregon	2,724	744	823	685	15.20	10,404	11,507
Pennsylvania	11,936	644	640	698	14.74	10,288	10,232
Rhode Island	986	657	663	664	13.83	9,181	9,268
South Carolina	3,425	641	691	792	16.12	12,774	13,767
South Dakota	709	685	950	657	14.02	9,215	12,792
Tennessee	4,855	650	829	794	13.18	10,462	13,344
Texas	16,789	664	733	798	15.40	12,293	13,565
Utah	1,680	599	663	787	14.45	11,382	12,604
Vermont	548	734	807	709	16.07	11,388	12,532
Virginia	5,904	687	784	745	15.91	11,848	13,528
Washington	4,538	696	844	636	15.82	10,063	12,202
West Virginia	1,897	687	629	794	14.50	11,509	10,543
Wisconsin	4,807	676	644	752	17.27	12,982	12,375
Wyoming	490	692	976	985	11.39	11,226	15,825
Total	243,400	652	736	714	15.06	10,748	12,122

Source: Federal Highway Administration, Table SS87-18, published October 1988.

Brand Names

Gasoline	Motor Oil
Ada Resources	
Philips (r,ur,up)	Philips Trop Artic
Conoco (r,ur,up)	Philips Super HD
	Conoco High Perfomance Heavy Duty
	Conoco Fleet
	Unocal Guardol
	Unocal Super
Agway Petroleum Corp.	
Agway (r,ur,up,usp)	Agway
Power Champ (r,ur,up)	
American Petrofina, Inc.	
Fina (r,ur,usp)	Fina SA Non-Detergent
	Fina Ultra Supreme
	Fina Turbo Universal
	Fina Universal
	Fina KAPPA SHD Universal
Amoco Corp.	
Amoco (r,ur,up,usp)	Amoco-Amolube
Amoco w/Ethanol (ur)	Amoco 200
	Amoco 300
	Amoco 400
	Amoco Turbo
	Amoco LDO
	Amoco Ultimate
Anchor Gasoline Corp.	
Canal (r,ur,up)	Sun
Bayou (r,ur,up)	
Arco Products Company	
Arco (r,ur,usp)	Arco
	Arco Fleet 53 Plus
	Arco Supreme
	Arco Graphite III
Arkansas Valley Petroleum	
Philips (r,p,sp)	
Sunoco (r,p,sp)	
Ashland Oil, Inc.	
	Valvoline
Atlantic Refining and Marketing Corp.	
Atlantic (r,ur,up,usp)	Atlantic-Special
	Atlantic-Premium
	Atlantic-Super Premium
Atlantic Richfield Co.	
Arco (r,ur,up)	ARCO
	ARCO XHD
	ARCO S3 Plus
	ARCOsupreme
	ARCO Graphite
Bagwell Oil Co., Inc.	
Unocal 76	Unocol 76
Chevron	Chevron
BP	BP
Beacon Oil Co.	
Beacon (r,ur)	Beacon
Ultramo (r,ur)	Sequoia
Bedford Valley Petroleum Corp.	
Amoco (ur,up)	Amoco
Chevron (ur,up)	Chevron
Texaco (ur,up)	Quaker State
	Kendall
	Pennzoil
Beneto, Inc.	
Exxon	
Bostick Brothers, Inc.	
Citgo (r,ur)	Conoco
BP America Inc.	
Sohio/Boron (ur,up,usp)	BP All Season
Gulf (r,ur,up)	BP Premex
	BP Nitrex Super Premium
	Nitrex Sea & Land
Bradley Petroleum Inc.	
	Sinclair
Bray Terminals, Inc.	
Citgo (r,ur,p,up,sp,usp,o)	Chevron
	Citgo
	Castrol
Brennan Petroleum Co.	
Mobil (r,ur,up)	Mobil
Browning Oil Co.	
Shell (r,ur,p,up)	Shell
Rally (r,ur,up)	
Dennis K. Burke Inc.	
Citgo (r,ur,up,usp)	Fleetline
	Citgo
	Texaco
	Shell
	Castrol
	Chevron
C.S.C. Oil Co.	
CSC (r, ur, up)	
Campbell Oil Co.	
Shell (r, ur, p)	Shell
Unocal	Unocal
Sunoco	Sunoco
Cannon Oil Corp.	
Cannon (ur,up,usp, d)	Cannon
CENEX	
Cenex (r,ur,up,usp)	Golden D
	Super Lube 518
	Super Lube XL
	CENEX LIT Tech.
	CENEX TC-501
Center Independent Oil Co.	
Citgo	Citgo
	Castrol
	Vavoline
	Quaker State
	Pennzoil
	Wolf's Head
Certified Oil Co.	
	Certified
	Quaker State
	Valvoline
	Shell
Champlain Oil Co.	
Citgo	Citgo
Texaco	Texaco
Gulf	Quaker State
BP	Castrol
Chapman Inc.	
Texaco (r,ur,p,up,sp,usp)	Texaco
Charter Marketing Co.	
Charter (r,ur,up)	
Chevron Corp.	
Chevron (r,ur,up,usp)	Chevron Special
	Chevron DELO 100
	Chevron Custom
	Chevron ATF Special
	Chevron RPM DELO
	Chevron Dexron II (ATF)
	Chevron DELO 400
	Standard ATF Special
Circle K Corp.	
CITGO Petroleum Corp.	
Citgo Reg. (r, ur)	Citgo Non-detergent
Premium (r, ur)	Citgo C-300 HD Detergent
Citgo Advantage Mid-grade (o)	Citgo All Season
	Citgard 500 Motor Oils
	Citgard 600
Clark Oil & Refining Corp.	
Regular Leaded	Clark H.D.
Regular Unleaded	Clark Premium 5W-30
Super Unleaded	Clark Premium 10W-40
	Clark Premium 10W-30
The Coastal Corporation	
Coastal (r,ur,p,up,sp,usp,o)	Uni-Lube
	GRC
Coen Oil Co.	
Amoco	Amoco
Union	Union
Mobil	Mobil
Citgo	Citgo
Pennzoil	Pennzoil
	Quaker State
	Valvoline
Colonial Oil Industries, Inc.	
Golden Premium	Enmark
No Lead	
Sterling	
Premium Plus	
Como Oil Co.	
Philips 66 (r,ur,p,up)	
Conoco Inc.	
Conoco (r,ur,up,usp)	Tracon
	Fleet
	Super
	HP Naling
	HP Turbo
	HP Xtreem
Consumers Oil	
	Consumers
	Soot
Convenient Petroleum Corp.	
Citgo (r,ur)	Citgo
Texaco (r,ur)	Texaco
Sunoco (r,ur)	Sunoco
Crockatt Oil Co.	
Conoco	Conoco
	Shell
	Texaco(Havoline)
	Philips
	Penzoil Sun
	Mobil
Crown Central Petroleum Corp.	
Crown (r,ur,up,usp,d)	Crown All-Season HD
	Peoples All-Season HD
	Crown Premium HD
	Crown Quality
	Crown Universal ATF
Crystal Flash Petroleum	
Crystal Flash (ur,up,usp,o,d)	Citgo
	Kendall
Curtis Parker Oil Co., Inc.	
Conoco (ur,usp)	Fleet
	Super
	Tracon
	High Performance
	Par
K.E. David Ltd.	
Citgo (r,ur)	
DeBlois Oil Co.	
Texaco (ur,up,usp)	Texaco
Citgo (ur,up,usp)	Sunoco
Sunoco (ur,up,usp)	Citgo

KEY:

Gasoline
(r) Regular
(ur) Unleaded regular
(p) Premium
(up) Unleaded premium
(sp) Super premium
(usp) Unleaded super premium
(o) Other
(d) Diesel

Gasoline	Motor Oil
Diamond Shamrock Refining & Mfg. Co.	
Diamond Shamrock (r,ur,usp)	Diamond Shamrock Triple Action
	Diamond Shamrock Equa Flo
	Genuine
	Golden State
	Approve ATF
Drakes Refining Stations	
Unino 76 (r,ur)	Kendall
	Quaker State
	Pennzoil
East Coast Oil Corp.	
East Coast (r,ur,up)	
Englefield Oil Co.	
Gulf (r,ur)	Duke
Marathon (r,ur)	Gulf
Mobil (r,ur)	Marathon
	Mobil
Exxon Company, U.S.A.	
Exxon (r,ur,)	Superflo High Performance
Exxon Plus (up)	Superflo Single Grade
Exxon Supreme (usp)	Superflo Multi-Grades
	Superflo Supreme Performance
Farm & Home Oil Co.	
Texaco (ur,up,usp,d)	Texaco
Amoco (ur,up,usp)	Amoco
BP (ur,up,usp)	BP
Fas-Stop, Inc.	
APCO (r,ur)	
Fleetman Inc.	
Fuelman (r,ur,up,d)	Oilman
F.O. Fletcher Oil, Inc.	
Veltex (r,ur)	
Price-Lees (r,ur)	
Fortmeyer Inc.	
Pennzoil (r,ur,p,up,sp,usp,o)	Citgo
Ashland (r,ur,p,up,sp,usp,o)	Pennzoil
Foster Oil Co.	
Union 76 (r,ur,usp)	Unocal
Boron (ur)	Boron BP
	Pennzoil
	Mobil
Franko Oil Co.	
Arco	Arco
H.N. Funkhouser & Co.	
Texaco (r, ur)	Quaker
Exxon	Pennzoil
	Kendall
	Texaco Havoline
The Gas King Corp.	
Mobil	
Texaco	
Exxon	
Gasco Gasoline, Inc.	
Gasco (r, ur, up)	Gasco Premium
	Gasco-H.D. Premium
Geldbach Petroleum Co., Inc.	
Mobil	Mobil

KEY:

Gasoline
(r) Regular
(ur) Unleaded regular
(p) Premium
(up) Unleaded premium
(sp) Super premium
(usp) Unleaded super premium
(o) Other
(d) Diesel

Gasoline	Motor Oil
General Oil Co., Inc.	
Regular leaded	
Regular unleaded	
Premium unleaded	
Global Petroleum Corp.	
Mobil	
Sun	
Conoco	
Global	
King	
Coastol	
Godwin Oil Co.	
Texaco	
Phillips	
Golden Gate Petroleum Co.	
Mobil (r, ur, up)	Bay Area/Diablo
Shell (r,ur, up)	Unocal
	Chevron
	Mobil
	Shell
Gresham Petroleum Co.	
Amoco (r, ur, up, d)	Amoco
Gulf Oil	
Gull (r, ur, usp)	Gulflube
	Gulflube HD
	Gulflube XHD
	Super Duty
	Gulfpride
	Super Premium
Gull Industries Inc.	
Gull (r, ur, up)	
Highway Oil, Inc.	
Regular unleaded	Workingman's Friend
Premium unleaded	
Diesel	
Angus I. Hines Inc.	
Shell (r, ur, up,d)	Sentry
Texaco (r,ur,up,d)	
Sentry (r,ur,up,d)	
Citgo	
Hop-In Food Stores	
Hop-In w/ethanol(r,ur,up)	Empire
Union (ur,up,usp)	Havoline
Shell	Quaker State
Sunoco	Pennzoil
Horn Distributing Co., Inc.	
Gulf	
Hudson Farris Corp.	
APCO	Pennzoil
	Havoline
	Valvoline
	Phillips
	Quaker State
	Total
Hughes Energy Inc.	
Mobil	Mobil
	Emblem
Hull Oil Co.	
Chevron (r,ur,p,up,sp,usp,o)	Chevron
Hull (r,ur,p,up,sp,usp,o)	
Hunt Refining Co.	
Parade (r,ur,up)	
Huntley Jiffy, Inc.	
Huntley-Jiffy	Huntley-Jiffy
Phillips	
Citgo	
J. & L. Inc.	
	J&L Special
	J&L Certified HD
	J&L HD10W30, 10W40

Gasoline	Motor Oil
Jacobus Petroleum Products Inc./ Jiffy Stop, Inc.	
Citgo	Citgo
Union	Union
Phillips	Phillips
Marathon	Marathon
Kellett Oil Co.	
Texaco (r,ur,p,up,sp,usp)	GRC
Phillips 66 (r,ur,p,up,sp,usp,o)	Texaco
Sinclair (r,ur,p,up,sp,usp)	
Kelley Williamson Co.	
Mobil (ur,up)	Citgo
Citgo (ur,up)	Mobil
Phillips (ur,up)	Kendall
Kent Distributors, Inc.	
Shell	P
Diamond Shamrock	Q
Phillips 66	
Kerr-McGee Refining Corp.	
KM (r,ur,up,usp,o)	Valu Lube
	Heavy Duty
	Blue Max All-Fleet
	Blue Velvet Fuel Efficient
Kickapoo Oil Co., Inc.	
Kickapoo (r,ur,p,up,d)	Kickapoo
	Pennzoil
Kimber Petroleum Corp.	
Amoco	Amoco
Citgo	Citgo
Mobil	Mobil
Kingston Oil Supply Corp.	
Mobil	Mobil
Getty	
Kirschner Bros. Oil Co.	
Chevron	
Getty	
Kunz Oil Co.	
Koch	
Phillips	
Kwik Shop, Inc.	
Citgo	
Lake Shore Petrocorp	
Phillips 66 (r, ur)	Phillips Trop Artic
Marathon (r, ur)	Phillips All Season
H. C. Lewis Oil Co.	
Exxon (r, ur, usp)	Exxon
	Pennzoil
The Lyden Company	
Amoco (r,ur,usp,d)	Amoco
Citgo (r,ur,up)	Quaker State
	Valvoline
Marathon Petroleum Co.	
Mile Maker (r)	
Super M (p)	
Martin Oil Marketing, Ltd.	
Martin (r,ur,usp,o,d)	Martin All Season 5W30
	Martin All Season 10W30
	Martin All Season 10W40
McDowell Oil Service/Time Markets, Inc.	
Exxon (ur,up,usp)	Exxon
	Martin Economy
	Martin ATF Dexron II
McLeleer Oil, Inc.	
Unocal 76	Kendall
Marathon	Unocal 76
Sunoco	Marathon
	Sunoco

Gasoline	Motor Oil
Merchants Oil Inc.	
Dino (r,ur,p,up,sp,usp)	Sinclair
	Trop Arctic
	Pennzoil
	Quaker State
	Shell
Merit Oil Corp.	
Merit (r,ur,up)	Merit Special
	Merit 10W30
	Merit 10W40
	Merit ATF
M.G.S. Oil, Petroleum & General Trading Corp.	
Marathon (r,ur, up)	Marathon 20W50
	Marathon 15W40
	Marathon W20 & 30
	Arco W20 & 30
Mid-Continent Systems, Inc.	
Phillips (ur,up)	Shell Rotella
Gulf (ur,up)	Delo
	Texaco Havoline
Midwest Petroleum Co.	
Sunoco	All Temp
Shell	Pennzoil
	Sun
	Shell
	Chevron
Mid-Missouri Oil Co.	
Shell (ur,up,usp)	Shell
Miller Enterprises, Inc.	
Unocal (r,ur,p,up,sp,usp,o)	
Phillips (r,ur,p,up,sp,usp,o)	
Miller Oil Co.	
Mobil (r,ur,up)	Miller
Fina (r,ur,up)	Chevron
Exxon (r,ur,up)	Exxon
Citgo (r,ur,up)	Mobil
Phillips (r,ur,up)	Amoco
Amoco (ur,up)	
Missouri Terminal Oil Co.	
Fina (r,ur,p,up,sp,usp,o,d)	Fina
Mobil Oil Corp.	
Mobil (r,ur,usp,o)	Mobil Regular
	Mobil Heavy Duty
	Mobil Super
	Mobil Delvac
	Mobil 1
Munro Petroleum & Terminal Corp.	
Shell	Shell
M.P.	Mobil
	Royal
Murphy Oil USA, Inc.	
Spur (ur,usp)	
Musket Corp.	
Love's (r,ur,usp,d)	Double Eagle Recond. 30W
	Sup-R-Lub 30W
	Sup-R-Lub 20W
	Pennzoil 20W
	Pennzoil 30W
	Quaker State Red 30W
National Oil & Gas Inc.	
Phillips (r,ur,p,up,sp,usp)	Amoco
Marathon (r,ur,p,up,sp,usp)	Pennzoil
	Phillips
	Mobil
	Quaker State
	Kendall
Neal, Inc.	
Fina (ur,up,usp,o)	Fina
Diamond Shamrock (ur,up,usp,o)	Amalie
	Pennzoil
	Quaker State

Gasoline	Motor Oil
Nella Oil Co.	
1-Stop (r,ur,p,up,sp,usp,o)	
Exxon (r,ur,p,up,sp,usp,o)	
Beacon	
Arco	
Noco Energy Corp.	
Noco (r,ur,p,up,sp,usp)	Exxon
	Mobil
Olympian Oil Co.	
Olympic (r,ur,up,usp)	Kendall
Pal Oil Company, Inc.	
Gulf	Texaco
Atlantic	Gulf
Pal	Atlantic
CFM	Castrol
	Quaker State
	Pennzoil
Parker Oil Co., Inc.	
Union 76	Union 76
Exxon	Exxon
Citgo	Citgo
Petrol	Texaco
Patterson Oil Co., Inc.	
Mobil	Mobil
Gulf	Gulf
Citgo	Citgo
Peavey Oil Co.	
Texaco (r,ur,up,d)	Texaco
Pennzoil	
Pennzoil (r,ur,up,sp)	Pennzoil
	Wolf's Head
Petroleum Marketers, Inc.	
Shell	Shell
Exxon	Exxon
Citgo	Citgo
Petrotex Marketing Inc.	
Shell (r,ur,up)	Liberty
	Approved
	Fina
	Quaker State
	Pennzoil
	Shell
	Castrol
	Texaco
	Chevron
Pettway Oil Co.	
Amoco (ur,up,usp)	Amoco
	Citgo
	Mobil
	Phillips
Phillips 66 Co.	
Phillips (r,ur,p,up,sp,usp)	Unique
	M M Motor Oil
	Super HD II
	Trop Artic
	HDS
Piasa Motor Fuels, Inc.	
Unocal (r,ur,up,usp)	Conoco
Conoco (r,ur,up,usp)	Amoco
	Shell
	Valvoline
	Pennzoil
	Quaker State
Pilot Oil Corp.	
Pilot (r,ur,up)	Pilot
Pride of Texas Distributing Co. Inc.	
Texaco	
Diamond Shamrock	
Pride Oil Co., Inc. (Miss.)	
Pride (r,ur,p,up,sp)	Kendall
	Pennzoil
	Quaker State
	Havoline

Gasoline	Motor Oil
Pride Oil Co. Inc. (Tenn.)	
Tenneco (r,ur,up)	Pennzoil
	Quaker State
	Havoline
	Kendall
Private Brand Services, Inc.	
	Pennzoil
	Quaker State
Publix Oil Co., Inc.	
Publix (r, ur, p, up, sp, usp, o)	
Quaker State Corp.	
Quaker State (r,ur,up)	Quaker State HD
	Quaker State HDX
	Universal Fleet
	Quaker State Super Blend
	Quaker State DeLuxe
	Quaker State Sterling
Quality Oil Co. Limited Partnership	
Shell (ur,up,usp)	Shell 30W
Quality Plus (r,ur,usp)	Shell X-100
	Shell Rotella
	Shell Fire & Ice
	Shell Fire & Ice 200
	Shell Truck Guard
Quarles Petroleum	
Shell	Shell
Texaco	
Quiktrip Corp.	
Redline (r,p,sp)	Redline
Red Hed Oil Co., Inc.	
	Cruise Master
	Valvoline
	Texaco
	Phillips Trop Artic
	Pennzoil
	Quaker State
Reinauer Petroleum Inc.	
Citgo (r,ur,p,up,usp,o)	
Reinhardt Oil Corp.	
	Sunoco
	Citgo
Remote Services, Inc.	
Convenient (r,up,usp,d)	
River Oil Co.	
Phillips 66	Phillips 66
Kerr McGee	
Roach Oil Co.	
Texaco	Havoline
	URSA
Robinson Oil Co., Inc.	
Rotten Robbie (r,ur,usp,d)	
Ross Resources, Inc.	
Apco (r,ur)	
Royster Oil Co., Inc.	
Gulf (r,ur,sp)	Saphire
	Gulflube
	Pride Single G
	Super Premium
	Super Duty

KEY:
Gasoline
(r) Regular
(ur) Unleaded regular
(p) Premium
(up) Unleaded premium
(sp) Super premium
(usp) Unleaded super premium
(o) Other
(d) Diesel

Gasoline	Motor Oil
Russell Petroleum Corp.	
Texaco (ur,up,o)	Quaker Stae
Spur (ur,up,o)	Texaco
Saveway (ur,up,o)	
Sahara Oil Co., Inc.	
Texaco (r,up,usp,d)	
Santee Oil Co., Inc.	
Shell (r,ur,usp)	Shell
Marathon (r,ur,usp)	
SCASCO	
Texaco (r,ur,p,up,sp,usp,o)	Texaco
Hess (r,ur,p,up,sp, sp,o)	
Sears Oil Co. Inc.	
Sears (r,ur,p,up,sp,usp)	Sears Premium
	Sears Supreme
Shay Oil Co., Inc.	
Exxon (r,ur,p,up,sp,usp)	Exxon
Shelby Petroleum Corp.	
Peer (r,ur,p,up,sp,usp)	Bonus Regular
Bonus (r,ur,p,up,sp,usp)	Sail Premium
	Peer Premium
	Peer Heavy Duty
	Peer Multi-Grade
Shell Oil Co.	
Shell (r, ur, up, usp)	Shell
	X-100
	Fire & Ice 2000
	Super 2000
	Shell Truck Guard
Shotmeyer Bros. Petroleum Corp.	
Mobil	Mobil
SICO Co.	
Amoco	Citgo
Atlantic	Valvoline
Texaco	Amoco
Exxon	Atlantic
	Exxon
R.L. Smeltz Oil Co., Inc.	
Amoco	Amoco
Pennzoil	Pennzoil
	Quaker State
Smith-Shafer Oil Co.	
SS (r,ur,up)	Quaker State
	Pennzoil
SOS Oil Corp	
Gulf (ur,up)	Shell
SOS (ur,up,o)	Exxon
	Texaco
	Kendall
	Castrol
	Valvoline
Southern Counties Oil Co.	
Arco (ur,up)	Southern Counties Oil
Mobil (ur,up)	Chevron
Texaco (ur,up,o)	Unocal
So. Countries Oil	Mobil
	Texaco
	Shell
Southern Oil Co., Inc.	
Exxon	Exxon
	Pennzoil
Southern States Co-op	
Southern States	Co-op
The Spencer Co., Inc.	
Amoco (ur,r,o)	LDO
Citgo (ur,r,o)	Amolube
	Ultimate
	Citgo All Season
Steuart Petroleum Co.	
Steuart (r,ur,p,up)	Cam2
	Pennzoil
Stevens Oil Co.	
Chevron (r,p,up,sp,usp,d)	Chevron RPM
	Custom
	Delo 400
Sumrall Oil Services, Inc.	
SOS	
Sun Refining and Marketing Co.	
Sunoco (r,ur,up,usp,o)	Sun Lube
	Ultra
	Ultra Super C.
Sunshine Jr. Stores, Inc.	
Jr. (r,ur)	Rallye
Citgo (r,ur)	Mobil
	Citgo
	Pennzoil
	Texaco-Havoline
	Quaker State
	Castrol
TCR, Inc.	
TCR (r,ur,p)	TCR
Texaco Inc.	
Texaco (r,ur,up,sp,o)	URSA Oil Extra Duty
	URSA Oil Super Plus
	URSA Oil Premium
	Havoline Premium
	Havoline Supreme
	Havoline High Performance
	Havoline Superior
Thornhill Oil Co.	
Amoco (r,ur,up)	Amolube
	LDO
	Ultimate
	Quaker State
Time Saver Stores Inc.	
	Golden State
	Quaker State
	Pennzoil
Tooley Oil Co.	
Tooley's (r,ur,sp,usp,d)	Shell
Shell (r,ur,sp,usp,d)	
Total Petroleum, Inc.	
Total (r,up)	Total Big Value
Vickers (ur,up)	Total Golden Supreme
	Total All Season
Transit Oil Co.	
Mobil	Mobil
Shell	Shell
Travelers Petroleum, Inc.	
Texaco (r,ur,up,sp)	Texaco
Self Way (r,ur,p,up)	Pennzoil
	Quaker State
Trenton Oil Co. Inc.	
Amoco (ur,up,usp)	Amoco
Triton Inc.	
Hoppy (r, ur, up)	
Tryon Oil Company	
Atlantic	Magnum
	Wolf's Head
	Atlantic
Ultra Power Corp.	
Gulf (r,ur,p,up,sp,usp,o)	Foxhead
Ultra Power (r,ur,p,up,sp,usp,o)	Arco
	Gulf
Unocal Corp.	
76 (r,ur,up,usp)	Unocal Heavy Duty
	Unocal Premium
	Unocal Guardol
	Unocal Super 10W-30
	Unocal Super 10W-40
	Unocal 20W/50 High Performance
Vista Marketing Group Ltd.	
	Pennzoil
	Quaker State
Wake Up Oil Co.	
Wake Up (r,ur,usp)	
Warren Equities, Inc.	
Sunoco (r,ur,ultra)	Oilzum
Citgo (r,ur,usp)	Citgo
Mobil (r,ur,usp)	Sunoco
	Shell
	Mobil
	Castrol
Wesson, Inc	
Texaco	
Mobil	
West Penn Oil Co., Inc.	
	Emblem Oil
Western Marketing, Inc.	
Conoco (r,ur,usp)	Delco
Shell (r,ur,usp)	Conoco Par
	Conoco Fleet
	Conoco Super
	Conoco Fleet Supreme
	Shell Rotella
	Aero Shell
A. T. Williams Oil Co.	
Wilco (r, ur, up, usp)	Wilco Economy
	Wilco 30 HD
J.H. Williams Oil Co., Inc.	
Unocal (r,ur,up)	Unocal Custom
	Unocal HD
	Unocal
	Unocal Premium
	Unocal Super
	Unocal HD-20W50
The Wills Group, Inc	
Texaco (ur,up)	Havoline
Exxon (ur,up)	Super Flo
Amoco	
BP	
Wooten Oil Company	
Texaco (r,ur,up)	Texaco
Amoco (r,ur,up)	Amoco
Citgo (r,ur,up)	
World Oil Co.	
World (r,ur,up,usp)	
Shell	
Arco	
Texaco	
York Oil Co., Inc.	
Citgo (r,ur,p,up,sp,usp)	

KEY:

Gasoline
(r) Regular
(ur) Unleaded regular
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(up) Unleaded premium
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(usp) Unleaded super premium
(o) Other
(d) Diesel

Capital Spending in the Oil Industry: A 10-Year Overview, Revised and Updated

For the past 30 years, Chase Manhattan Bank has been publishing estimates of worldwide capital expenditures in the oil and gas industries. In 1987 and 1988, Chase Manhattan revised its data collection procedures and the new results are shown on this page. The new format reports only on exploration and production expenditures and on refinery expenditures. No longer available are the former estimates on pipelines, chemicals, marketing and transportation. To put the series on a firm footing, Chase Manhattan has revised all of the data back to 1977. The data below therefore are not compatible to information carried in the preceding issues of the NPN Factbook. Chase Manhattan said the new approach was necessary because, unlike the earlier days when a group of multi-national oil companies dominated the global industry, the roles of both production and consuming governments has increased and their presences are more noticeable in survey data.

(Millions of Dollars)

	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	10-Year Totals
United States											
Crude Oil and Natural Gas	24,830	43,640	48,060	42,260	52,210	54,730	36,990	27,410	20,030	16,630	366,670
Refineries*	2,800	3,710	3,710	4,400	6,730	5,530	4,000	3,080	2,080	1,530	37,570
Total	**27,630**	**47,350**	**51,770**	**50,660**	**58,940**	**60,260**	**40,990**	**30,490**	**22,110**	**18,160**	**408,360**

*Includes natural gas liquid plants.

	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	10-Year Totals
North America											
Crude Oil and Natural Gas	31,210	52,430	57,550	53,070	58,820	64,230	49,710	35,410	26,330	20,870	449,630
Refineries*	4,900	7,040	6,740	6,120	8,860	8,460	6,220	6,510	4,110	3,680	62,640
Total	**36,110**	**59,470**	**64,020**	**59,190**	**67,680**	**72,690**	**55,930**	**41,920**	**30,440**	**24,550**	**511,370**

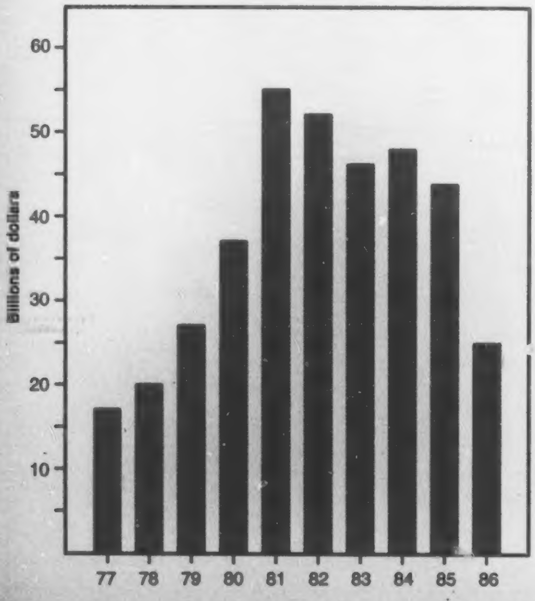
*Includes natural gas liquid plants.

	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	10-Year Totals
World											
Crude Oil and Natural Gas	54,470	77,370	83,900	83,160	91,410	90,700	72,100	53,030	41,000	34,130	681,270
Refineries*	10,000	12,050	12,430	12,820	17,660	17,100	14,030	12,930	9,310	7,690	126,020
Total	**67,280**	**91,000**	**98,500**	**100,860**	**115,370**	**114,100**	**90,240**	**68,600**	**53,380**	**46,160**	**845,490**

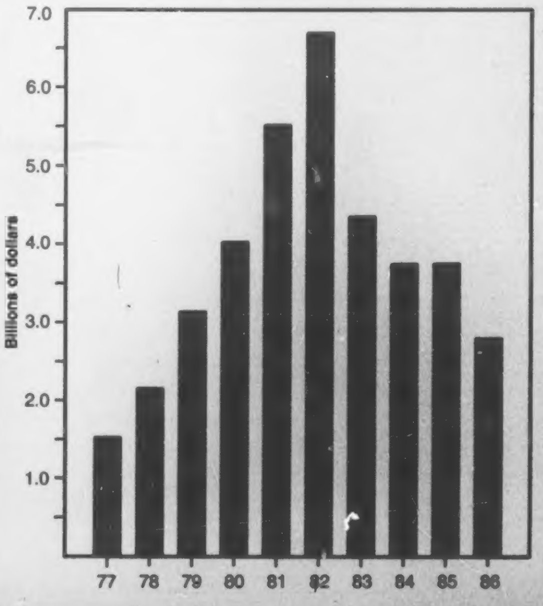
*Includes natural gas liquid plants but no liquified Natural Gas plants; the world total includes the LNG plants, however.

Source: Capital Investments of The World Petroleum Industry 1985 and 1986, Chase Manhattan Bank, New York, published in October 1988.

U.S. Capital Expenditures Exploration and Production

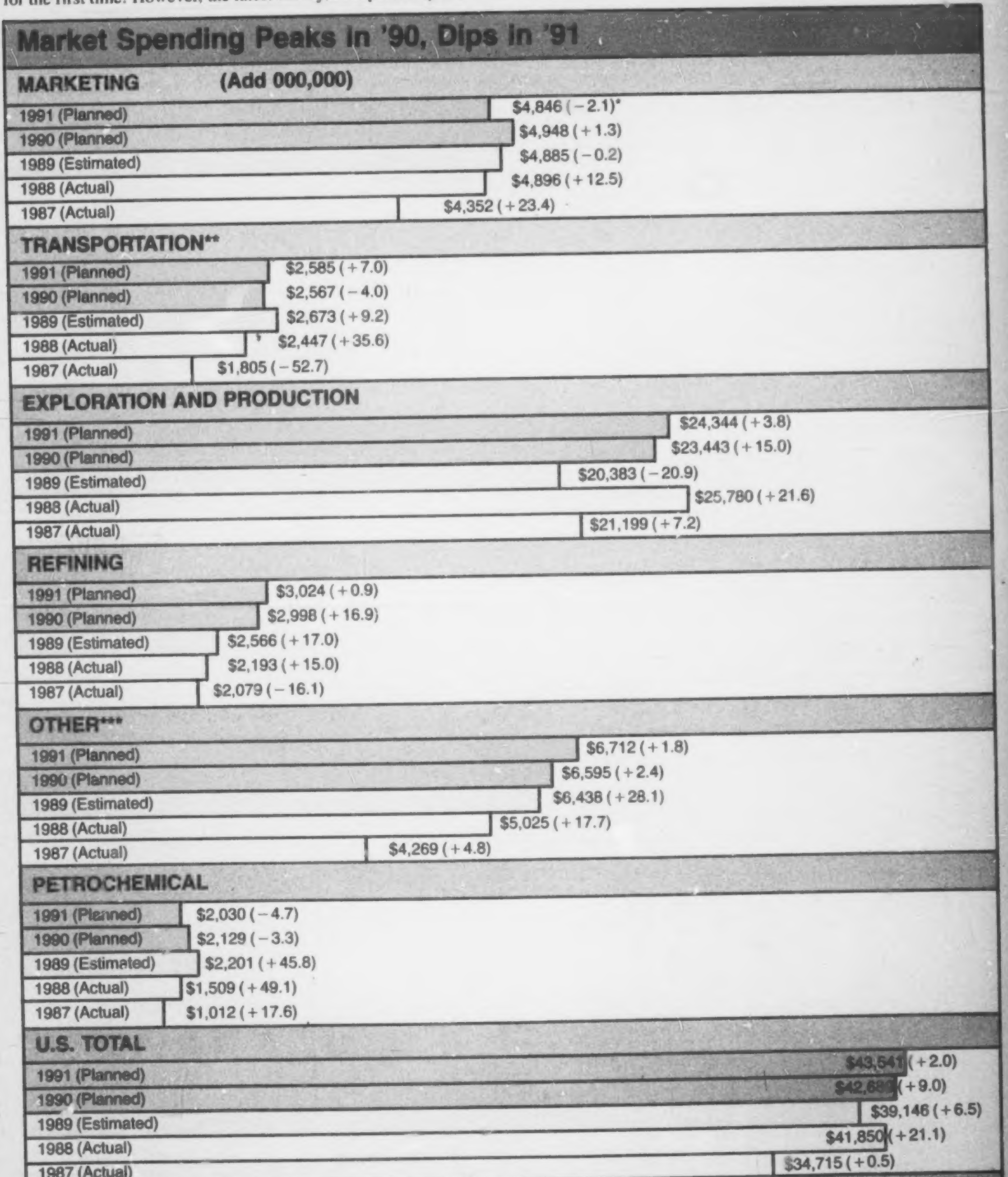


U.S. Capital Expenditures Refineries



Marketing Investments Leveling Off

Capital spending projections last Fall indicated that oil marketing investments were about to burst through the $5-billion plateau for the first time. However, the latest survey, as reported by Data Resources, Inc. subsidiary of McGraw-Hill, Inc. on June 1, presents a more modest, but still healthy, picture of growth through 1991.



Market Spending Peaks in '90, Dips in '91

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* Figures in parentheses indicate percentage change from previous year.

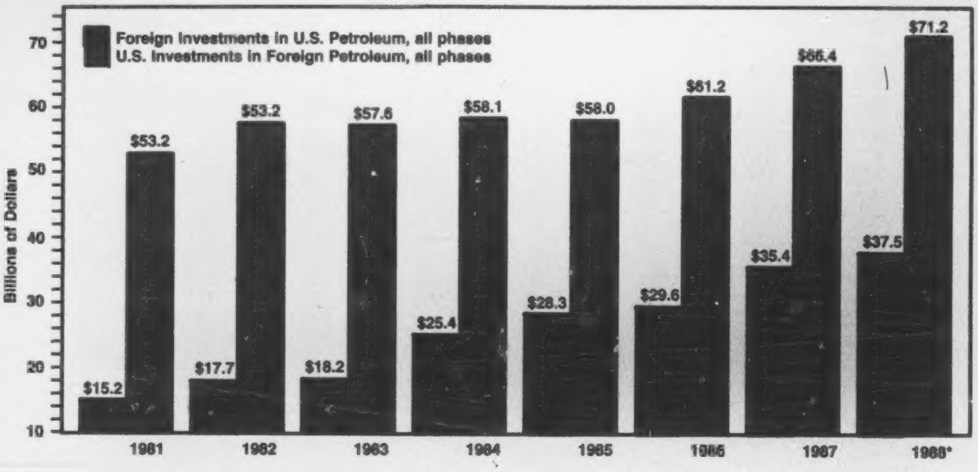
** Does not include gas pipelines.

*** Includes coal mining by oil companies.

X Insufficient replies to make valid projections.

Source: Data Research Inc./McGraw-Hill Inc. Thirty-ninth survey of Preliminary Plans for New Plants and Equipment 1987-1991, data collected in April-May and published June 1, 1989.

Foreign and U.S. Investments in Petroleum



* Estimated by NPN.
Source: Profiles of Foreign Direct Investment in U.S. Energy 1987, Energy Information Administration.

Several major joint ventures and outright acquisitions increased the stake foreign investors have in the U.S. oil industry by a substantial margin last year.

Perhaps more than in previous years, the major thrust of foreign direct investments (FDI) in 1988 focused on U.S. downstream (refining and marketing) assets as foreign producers sought a better foothold for their products in profitable U.S. marketplaces. Notable among these new ventures were the Saudi Arabia-Texaco, China-Coastal and Venezuela-Unocal partnerships, plus the purchase of Clark Oil by Canada's Horsham Corp.

Actually, the total FDI increased by a larger dollar amount from 1986 to 1987, as reported in an Energy Information Administration profile (See table below), than it did last year, based on NPN's projected total for 1988. However, the lion's share of the FDI increase in 1987 was accounted for by British Petroleum's multi-billion outlay to complete its purchase of Standard Oil stock.

In 1988, NPN estimates that foreign investors added approximately $3-billion to the FDI total, bringing that amount to about $37.5 billion at year's end. Last year was notable, too, because of the entry of two major new players—Saudi Arabia and China—into the U.S. petroleum market. Previously, the bulk of FDI's originated in Europe, primarily The Netherlands and the United Kingdom.

Although foreign firm investments still represent less than 10% of the domestic petroleum industry, percentages can be misleading. EIA's data indicates that foreign investors now own or market through one out of every three U.S. service stations, supply almost 25% of American gasoline needs and control about one-fifth of U.S. refinery capacity and approximately one out of every six domestic refineries.

Foreign Direct Investments in the U.S.
(Billions of dollars)

Year	FDI in U.S. Petroleum	Total FDI in U.S.	% Petroleum of Total
1988*	$37.5	$288.0	13.0%
1987	35.4	261.9	13.5
1986	29.1	220.4	13.2
1985	28.3	184.6	15.3
1984	25.4	164.6	15.4
1983	18.2	137.1	13.3
1982	17.7	124.7	14.2
1981	15.2	108.7	14.0

(*) Projected by NPN.

U.S. Direct Investments in Foreign Petroleum

Year	U.S. Direct Investment in Foreign Oil	Total U.S. Investment Abroad	% Petroleum of Total
1988*	$71.2	$329.0	21.6%
1987	66.4	308.8	21.5
1986	61.7	259.6	23.8
1985	57.7	230.2	25.1
1984	58.1	211.5	27.5
1983	57.7	230.2	25.1
1982	57.8	207.8	27.8
1981	53.2	228.3	23.3

(*) Projected by NPN.

FDIs in Marketing, Refining and Production(a)

	1987	1986	1985
Branded retail outlets			
FDI companies	39,624	40,590	32,721
U.S. total	115,870	120,150	124,600
% FDI of U.S. total	34.2%	33.8%	26.3%
Gasoline supplied (in thousands of b/d)			
Total FDIs	1,674	1,565	1,285
U.S. total	7,206	7,034	6,831
% FDI of U.S. total	23.2%	22.2%	18.8%
Refineries			
Total FDIs	34	33	29
U.S. total	213	219	216
% FDI of U.S. total	16.0%	15.1%	13.4%
Crude distillation capacity (in thousands of b/d)			
Total FDIs	3,342	3,133	2,656
U.S. total	15,915	15,566	15,459
% FDI of U.S. total	21.0%	20.1%	17.2%
Crude oil and NGL production (in thousands of b/d)			
Total FDIs	1,617	1,512	1,455
U.S. total	10,008	10,289	10,636
% FDI of U.S. total	16.2%	14.7%	13.7%
Crude oil and NGL proved reserves (millions of bbl.)			
Total FDIs	6,291	5,587	5,866
U.S. total	35,403	35,054	36,360
% FDI of U.S. total	17.8%	15.9%	16.1%

(a) EIA has revised many of the totals originally published last year for 1985 and 1986 in the categories shown. The revisions appear in the tables above.

How Oil Companies Handle

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED(a)	BRANDED SERVICE STATIONS			
			Supplied Directly	Supplied Through Jobbers and Commissioned Agents	Lessee/ Dealer-operated	Salary-operated
Ada Resources	97	1	40	13	52	0
Advanced Oil Co.	20	2	20	—	5	15
Agway Petroleum Corp.	232	9	80	2	76	4
American Petrofina, Inc.	3,458	24	185	2,581	18	145
American Refining Group, Inc.	8	1	8	0	0	6
Amoco Corp.	10,246	30	3,791	6,455	3,442	241
Anchor Gasoline Corp.	61	1	61	—	61	—
Arkansas Valley Petroleum	—	—	4	—	4	—
Armour Oil Co.	—	—	—	64	—	[illegible]
Ashland Oil, Inc.	2,110	19	0	469	469	0
Atlantic Refining & Marketing Corp.	1,091	6	665	426	339	246
Atlantic Richfield Products Co.	1,673	5	1,252	421	—	—
Aztex Enterprises	36	1	36	0	0	36
BP America, Inc.	7,413	29	2,426	4,888	1,025	1,047
Bagwell Oil Co., Inc.	30	2	15	—	2	—
E.M. Bailey	60	3	60	—	—	—
Beacon Oil Company	350	2	30	172	32	116
Bell Fuels, Inc.	5	2	5	0	1	4
Best Oil Co.	16	1	15	—	1	15
Bostick Brothers, Inc.	6	1	6	0	0	0
Bradley Petroleum Inc.	33(A)	3	0	0	0	0
Bray Terminals, Inc.	75	2	55	20	75	0
Brennan Petroleum Corp.	1	1	1	0	0	1
Browning Oil Co.	28	1	26	—	26	—
Buhrmaster Energy Group	2	1	0	2	2	0
Dennis K. Burke, Inc.	1	1	1	0	0	1
Campbell Oil Co.	83	1	13	—	13	—
Cannon Oil Corp.	17	3	—	—	—	—
Cel Oil Products Corp.	13	1	13	0	0	13
Cenex	972	14	961	11	7	61
Center Independent Oil Co.	20	1	16	—	7	13
Certified Oil Co.	175	3	165	—	—	165
Champlain Oil Co.	102	4	42	10	46	[illegible]
Chaney Oil Co. of Vicksburg Inc.	16	1	11	5	4	6
Chapman, Inc.	32	1	32	0	18	14
Chevron Corp.	11,969(B)	33	4,185	5,789	9,317	657
W.R. Childress Oil Co., Inc.	55	1	—	7	7	—
Circle K Corp.	847	22	—	—	0	—
Citgo Petroleum Corp.	7,697	40	—	—	—	—
Clark Oil & Refining Corp.	946	12	946	0	19	927
The Coastal Corp.	850	22	740	110	210	632
Coen Oil Co.	0	0	—	—	—	—
Colonial Oil Industries, Inc.	62	3	62	0	0	[illegible]
Commander Oil Corp.	—	—	—	—	—	—
Como Oil Co.	95	3	95	—	—	[illegible]
Conoco Inc.	4,843	37	477	4,366	4,366	477
Consumers Gasoline Stations Inc.	—	—	29	—	—	29
Consumers Oil	46	2	46	—	26	6
Convenient Petroleum Corp.	49	1	49	0	18	[illegible]
Cook & Cooley, Inc.	70	1	55	15	50	20
Crockett Oil Co.	20	4	20	0	13	7
Crown Central Petroleum Corp.	730	8	680	50	100	630
Crystal Flash Petroleum Corp.	25	1	25	0	0	25
Crystal Petroleum						
Curtis Parker Oil Co. Inc.	22	1	16	6	21	1
Curt's Oil Co., Inc.	22	5	22	0	0	22
Dairy Mart Convenience Stores, Inc.	429	15	—	—	—	—
K.E. David, Ltd.	4	1	4	—	1	—
DeBlois Oil Co.	41	2	—	—	11	30
Diamond Shamrock Refining & Marketing Co.	1,973	8	618	1,355	—	618
Dickey Inc.	5	1	5		1	—
Drakes Refinery Stations, Inc.	5	1	—	5	0	5
East Coast Oil Corp.	40	1	40	0	0	—
Emro Marketing Co.	1,375	18	1,376	—	—	1,376
Engelfield Oil Co.	245	2	245	0	195	50
Exxon Co., U.S.A.	12,456	37	4,228	8,228	2,909	632
Farm & Home Oil Co.	40	2	40	0	29	[illegible]
Fas-Stop, Inc.	4	1	4	—	—	4
Fleetman, Inc.	86	3	50	36	0	[illegible]
Fleischill Oil Co.	5	1	5	—	—	—
F.O. Fletcher Oil, Inc.	16	3	16	—	—	3
Flying J Inc.	90	13	80	—	—	90
Foster Oil Co.	70	1	31	—	1	[illegible]
Franko Oil Co.	49	2	40	0	2	47
H.N. Funkhouser & Co.	15	1	—	—	1	[illegible]
The Gas King						
Gasco Gasoline, Inc.	56	1	42	14	14	39
Geldbach Petroleum Co., Inc.						
General Oil Co.	35	1	—	—	—	—

(a) Includes District of Columbia.

Product Distribution

				BRANDED JOBBERS/COMMISSIONED AGENTS			
					Number selling . . .		
Commission-operated	Full-service only	Self-service only	Self-service/Full-service	Total	Gasoline only	Fuel Oil only	Gasoline/Fuel Oil
1	28	6	19	15	—	—	15
—	15	5	—	—	—	—	—
3	4	75	4	19	3	—	15
0	138	2,213	415	410	11	—	399
2	0	8	0	—	—	—	—
108	1,025	1,536	7,685	1,123	—	—	—
—		61		10	10	—	—
—	2	—	2	2	—	—	2
—	—	64	—	—	—	—	—
0	399	10	60	292	—	—	292
6	385	630	76	71	11	—	60
—	—	—	—	37	29	—	8
0	0	34	2	—	—	—	—
312	72	341	946	470	—	—	470
13	5	—	10	—	—	—	—
—	—	—	—	—	—	—	—
—	7	143	32	33	—	—	33
0	4	1	0	—	—	—	—
0	1	15	0	—	—	—	—
6	1	4	1	—	—	—	—
0	0	0	0	—	—	—	—
0	0	0	75	—	—	—	—
0	0	1	0	—	—	—	—
—	2	4	16	—	—	—	—
0	0	0	2	2	2	—	—
0	1	0	0	1	—	—	1
—	—	—	13	—	—	—	—
—	—	—	—	—	—	—	—
0	7	6	0	—	—	—	—
0	133	252	587	—	73	—	899
0	9	11	0	—	—	—	—
—	—	—	165	—	—	—	—
0	—	—	—	3	—	—	3
6	—	—	—	2	—	—	—
0	4	14	14	20	20	—	—
—	3,000	2,974	4,000	—	—	50	671
—	—	—	7	10	—	—	—
0	0	—	0	—	—	—	—
—	—	—	—	383	—	—	—
0	2	926	18	—	—	—	—
8	6	836	8	218	218	—	—
—	—	—	—	—	—	—	—
56	3	3	56	—	—	—	—
—	—	—	—	—	—	—	—
—	10	85	—	4	—	—	4
0	920	3,003	920	720	720	—	—
—	[illegible]	24	1	—	—	—	—
14	46	—	—	—	—	—	—
0	0	31	18	49	49	—	—
0	0	66	14	4	—	—	4
0	4	15	1	—	12	—	8
0	0	0	730	—	—	—	—
0	0	24	1	2	—	—	2
0	9	5	8	2	—	—	2
0	0	22	0	—	—	—	—
—	—	—	—	—	—	—	—
—	3	1	—	—	3	—	1
—	20	21	0	41	41	—	—
—	—	1,946	27	141	141	—	—
0	4	1	—	—	—	—	—
0	1	38	1	—	—	—	—
—	3	1,373	—	—	—	—	—
0	48	66	131	3	—	—	3
—	—	—	—	724	323	4	397
5	17	13	10	—	—	—	—
—	—	3	1	—	—	—	—
10	0	86	0	2	—	—	2
—	—	5	—	—	—	—	5
13	12	4	—	3	—	—	3
—	4	—	86	—	—	—	—
0	6	23	2	1	—	—	1
0	40	9	0	—	—	—	—
—	—	—	6	—	—	—	—
3	2	39	15	—	—	—	—
—	—	—	—	2	—	—	2

BULK PLANTS				TERMINALS				
	Company-operated				Company-operated			
Total	Salary-operated	Commission-operated	Jobber-operated Bulk Plants	Total	Salary-operated	Commission-operated	Jobber-operated Terminals	Company
3	2	1	14	—	—	—	—	Ada Resources
—	—	—	—	—	—	—	—	Advanced Oil Co.
119	119	0	16	10	10	0	—	Agway Petroleum Corp.
0	—	—	205	8	8	0	0	American Petrofina, Inc.
0	0	0	0	1	1	0	0	American Refining Group, Inc.
0	0	0	1,781	83	83	0	—	Amoco Corp.
10	—	10	—	2	—	—	—	Anchor Gasoline Corp.
1	—	—	1	0	—	—	—	Arkansas Valley Petroleum
—	—	—	—	—	—	—	—	Armour Oil Co.
127	5	122	—	31	31	0	—	Ashland Oil, Inc.
1	0	0	1	18	18	0	0	Atlantic Refining & Marketing Corp.
0	0	0	—	34	—	—	—	Atlantic Richfield Products Co.
1	1	0	—	1	1	0	—	Aztex Enterprises
83	0	83	—	60	60	0	—	BP America, Inc.
2	2	0	—	1	1	0	—	Bagwell Oil Co., Inc.
4	—	4	—	—	-	—	—	E.M. Bailey
23	—	—	23	0	—	—	—	Beacon Oil Company
1	1	0	—	1	1	0	—	Bell Fuels, Inc.
—	—	—	—	—	—	—	—	Best Oil Co.
2	2	0	—	1	1	0	—	Bostick Brothers, Inc.
0	—	—	—	0	—	—	—	Bradley Petroleum Inc.
—	—	—	—	3	3	0	—	Bray Terminals, Inc.
0	0	0	—	0	0	0	—	Brennan Petroleum Co.
2	2	0	—	0	0	0	—	Browning Oil Co.
—	—	—	—	—	—	—	—	Buhrmaster Energy Group
0	0	0	—	0	0	0	—	Dennis K. Burke, Inc.
3	0	0	3	0	0	0	0	Campbell Oil Co.
0	—	—	—	0	—	—	—	Cannon Oil Corp.
1	—	—	—	0	0	0	—	Cel Oil Products Corp.
—	—	—	837	7	6	1	0	Cenex
1	1	0	—	1	1	0	—	Center Independent Oil Co.
—	—	—	—	2	2	0	—	Certified Oil Co.
0	0	0	—	0	0	0	—	Champlain Oil Co.
0	—	—	—	0	—	—	—	Chaney Oil Co. of Vicksburg Inc.
2	2	0	—	0	0	0	—	Chapman, Inc.
871	0	0	871	120	89	1	30	Chevron Corp.
3	3	—	—	—	—	—	—	W.R. Childress Oil Co., Inc.
0	0	0	—	0	0	0	—	Circle K Corp.
0	0	0	—	43	43	0	—	Citgo Petroleum Corp.
0	0	0	—	13	13	0	—	Clark Oil & Refining Corp.
10	2	8	0	237	49	188	0	The Coastal Corp.
1	—	—	—	—	—	—	—	Coen Oil Co.
1	1	0	—	2	0	2	—	Colonial Oil Industries, Inc.
3	3	0	—	3	3	0	—	Commander Oil Corp.
6	6	—	—	0	—	—	—	Como Oil Co.
0	—	—	—	402	51	—	0	Conoco Inc.
0	0	0	—	0	0	0	—	Consumers Gasoline Stations Inc.
1	—	—	1	—	—	—	—	Consumers Oil
—	—	—	—	1	1	—	—	Convenient Petroleum Corp.
0	0	0	—	0	0	0	—	Cook & Cooley, Inc.
—	—	—	—	—	—	—	—	Crockett Oil Co.
—	—	—	—	—	11	0	—	Crown Central Petroleum Corp.
4	2	2	0	0	0	0	—	Crystal Flash Petroleum Corp.
								Crystal Petroleum
3	1	2	0	0	0	0	—	Curtis Parker Oil Co. Inc.
0	0	0	—	0	0	0	—	Curt's Oil Co., Inc.
0	0	0	—	0	0	0	—	Dairy Mart Convenience Stores, Inc.
—	—	—	—	3	3	—	—	K.E. David, Ltd.
2	2	0	—	1	1	0	—	DeBlois Oil Co.
2	2	0	—	10	10	0	—	Diamond Shamrock Refining & Marketing Co.
								Dickey Inc.
0	0	0	—	0	0	0	—	Drakes Refinery Stations, Inc.
0	0	0	—	0	0	0	—	East Coast Oil Corp.
1	1	—	—	0	—	—	—	Emro Marketing Co.
9	8	1	1	—	—	—	—	Englefield Oil Co.
0	0	0	—	61	61	0	—	Exxon Co., U.S.A.
4	4	0	—	1	1	0	—	Farm & Home Oil Co.
0	—	—	—	0	—	—	—	Fas-Stop, Inc.
1	1	0	—	1	—	—	—	Fleetman, Inc.
6	—	—	6	0	—	—	—	Fleischill Oil Co.
0	—	—	—	0	—	—	—	F.O. Fletcher Oil, Co.
7	—	—	7	—	—	—	—	Flying J Inc.
3	3	0	1	0	0	0	—	Foster Oil Co.
—	—	—	—	—	—	—	—	Franko Oil Co.
3	3	—	—	—	—	—	—	H.N. Funkhouser & Co.
								The Gas King
—	—	—	—	—	—	—	—	Gasco Gasoline, Inc.
								Geldbach Petroleum Co., Inc.
1	0	1	—	—	—	—	—	General Oil Co.

(A) Includes Sav-O-Mat Inc. (B) Excludes airport, marine outlets, new car dealerships.

How Oil Companies Handle

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	BRANDED SERVICE STATIONS Supplied Directly	Supplied Through Jobbers and Commissioned Agents	Lessee/ Dealer-operated	Salary-operated
Getty Petroleum Corp.						
Giant Industries, Inc.	21	3	—	—	—	—
Global Petroleum Corp.	137	10	137	—	117	20
Godwin Oil Co.	15	1	—	5	5	—
Gresham Petroleum Co.	30	1	3	—	1	2
Jack Griffith Petroleum	12	1	12	—	—	12
Gulf Oil	4,463	12	1,954	2,509	427	864
Harris Enterprises Inc.	22	2	22	0	20	2
Hawaiian Energy, Inc.	21	1	21	—	—	21
Highland Petroleum, Inc.	9	5	—	—	—	—
Highway Oil, Inc.	212	22	212	0	0	180
Angus I. Hines, Inc.	55	3	—	—	5	2
Barney Holland Oil Co.	90	1	44	—	44	—
Hop-In Food Stores	151	4	7	—	—	7
Hough Fuel	—	—	59	0	57	0
Huck's Convenience Stores	95	4	90	5	0	95
Hudson Oil Co.	11	2	11	0	0	11
Hughes Energy, Inc.	40	1	15	—	10	—
Hull Oil Co.	28	2	8	2	2	8
Hunt Refining Co.	130	2	2	128	20	110
Huntley Jiffy, Inc.	60	2	—	—	—	—
J. & L. Oil, Inc.	58	3	55	—	4	51
Jacobus Petroleum Products, Inc.	39	1	0	39	28	10
Jiffy Stop Inc.	11	1	1	—	—	—
Johnson Products, Inc.	65	6	60	5	—	65
Kellett Oil Co.	10	1	10	—	6	—
Kelley Williamson Co.	35	2	—	8	8	—
Kent Distributors, Inc.	8	1	—	6	0	0
Kerr-McGee Refining Corp.	1,941	21	110	1,831	1,292	583
Kimber Petroleum Corp.	89	1	89	0	74	15
Kirschner Bros. Oil Co.	10	3	3	7	7	3
Kunz Oil Co.	29	1	21	—	9	12
Kwik Shop, Inc.	34	2	—	—	—	—
Lakeside Oil Co., Inc.	111	1	111	0	111	0
H.C. Lewis Oil Co.	30	1	15	—	15	—
Martin Oil Marketing, Ltd.	43	2	43	0	0	43
Mauger & Co.	41	1	41	0	25	16
Marathon Petroleum Co.	2,527	8	556	1,971	556	0
McCall Oil Co.	1	1	1	—	—	—
McDowell Oil Service Inc.	29	1	29	—	—	—
McLeieer Oil, Inc.	65	1	—	—	—	—
Merchants Oil Inc.	42	1	42	—	16	10
Merritt Truax, Inc.	40	1	40	0	39	1
Mid-Continent Systems, Inc.	34	4	34	—	—	34
Mid-Missouri Oil Co.	15	1	3	—	3	—
Mid-States Petroleum	121	3	121	—	78	38
Midwest Petroleum Co.	127	2	127	—	60	67
Miller Enterprises, Inc.	86	—	—	—	—	—
Miller Oil Co.	100	2	68	—	56	12
Mini-Mart Inc.	117	6	77	40		117
Missouri Terminal Oil Co.	35	2	19	0	19	0
Mobil Oil Corp.	11,074	36	4,624	6,450	2,562	722
Munro Petroleum Terminal Corp.	32	1	—	4	2	2
Murphy Oil USA, Inc.	663	14	487	176	176	—
Musket Corp.	119	6	119	—	—	119
National Oil & Gas Inc.	91	2	80	8	89	2
National Oil Co.	371	14	0	371	—	—
Neal, Inc.	28	1	0	—	—	—
Nella Oil Co.	29	1	20	9	—	27
Newell Oil Co., Inc.	15	1	—	15	10	—
Northville Industries Corp.	110	2	75	35	110	—
Oils Inc./Wright Industries	18		18	0	—	0
Olympian Oil Co.	45	1	45			19
Pacer Oil Co.	—	4	—	—	—	—
Pal Oil Company Inc.	64	2	64	—	54	8
Parker Oil Co., Inc.	160	3	10	—	10	—
Promana, Inc.	17	1	17	—	—	—
Patterson Oil Co., Inc.	38	1	38	—	24	14
PDQ Food Stores, Inc.	69	4	0	—	—	—
Peavy Oil Co.			8	—	4	4
Pekin Energy Co.	—	—	—	—	—	—
Pennzoil Products Co.	543	8	69	426	49	20
Petroleum Marketers, Inc.	157	2	30	—	25	5
Petroleum Products Corp.	40	1	—	40	—	—
Petroleum Sales & Service	40	1	28	—	17	—
Petrotex Marketing Inc.	23	1	15	—	—	—

Product Distribution (cont'd.)

				BRANDED JOBBERS/COMMISSIONED AGENTS			
					Number selling . . .		
Commission-operated	Full-service only	Self-service only	Self-service/ Full-service	Total	Gasoline only	Fuel Oil only	Gasoline/ Fuel Oil
—	0	21	0	—	—	—	—
—	95	42	—	—	—	—	—
—	—	—	5	—	—	—	—
—	—	—	3	—	—	—	—
—	—	12	—	—	12	—	—
—	2,455	1,115	893	134	80	—	54
0	0	0	22	—	—	—	—
—	—	21	—	—	—	—	—
—	—	—	—	9	9	—	—
32	100	32	80	—	—	—	—
—	1	—	6	—	—	—	—
—	14	20	10	—	—	—	—
—	—	7	—	24	24	—	—
2	59	—	—	—	—	—	—
0	0	95	0	—	100	—	—
0	8	3	0	—	—	—	—
—	5	—	—	—	35	—	5
—	—	9	1	1	—	—	1
0	0	130	0	50	—	—	50
—	—	—	—	—	—	—	—
—	3	52	—	—	—	—	—
1	0	14	25	6	—	—	6
—	—	—	—	—	—	—	—
—	—	—	65	—	—	—	—
—	2	6	2	3	0	0	0
—	3	—	5	2	—	—	2
0	—	6	—	8	8	—	—
66	179	790	972	485	66	2	417
0	89	0	0	—	—	—	—
—	2	—	8	1	—	—	—
0	13	6	2	—	—	—	—
—	—	—	—	—	—	—	—
0	2	85	24	—	—	—	—
—	5	—	10	—	—	—	—
0	0	43	0	—	—	—	—
0	0	41	0	—	—	—	41
0	316	456	1,747	219	—	—	219
1	1	—	—	—	—	—	—
—	—	29	—	—	—	—	—
—	—	—	—	—	—	—	—
16	11	12	19	—	—	—	—
0	40	0	0	—	—	—	—
—	4	30	—	—	—	—	—
—	—	1	2	—	—	—	—
5	46	44	31	4	—	1	3
—	13	76	36	—	—	—	—
—	—	—	—	114	114	—	—
		8	60	—	—	—	—
—	—	117	—	40	—	—	40
0	0	7	12	4	1	0	3
0	—	—	—	1,124	1	492	631
—	—	—	4	—	—	—	—
—	20	623	20	0	—	—	—
—	—	119	—	—	—	—	—
15	5	20	61	23	—	—	23
371	—	371	—	18	—	—	18
—	—	—	—	1	—	—	1
2	—	29	—	—	—	—	—
5	1	6	8	—	—	—	—
—	50	40	20	4	2	—	2
0	0	0	18	0	—	—	—
—	—	19	26	2	—	—	2
—	—	—	—	—	—	—	—
2	15	45	4	—	—	—	—
—	—	—	10	—	—	—	—
—	—	17	—	0	—	—	—
—	10	11	17	0	—	—	—
—	—	69	—	0	—	—	—
—	—	—	4	0	—	—	—
—	—	—	—	—	—	—	—
426	50	290	145	93	2	—	91
—	—	—	30	—	—	—	—
—	—	30	10	—	—	—	—
11	28	—	—	0	—	—	—
—	—	—	15	—	—	—	—

BULK PLANTS				TERMINALS				
	Company-operated				Company-operated			
Total	Salary-operated	Commission-operated	Jobber-operated Bulk Plants	Total	Salary-operated	Commission-operated	Jobber-operated Terminals	Company
								Getty Petroleum Corp.
0	0	0	—	0	0	0	—	Giant Industries, Inc.
—	—	—	—	44	5	—	—	Global Petroleum Corp.
1	—	—	—	—	—	—	—	Godwin Oil Co.
—	—	—	—	—	—	—	—	Gresham Petroleum Co.
—	—	—	—	—	—	—	—	Jack Griffith Petroleum
—	—	—	—	28	19	—	48	Gulf Oil
3	—	—	—	—	—	—	—	Harris Enterprises Inc.
—	—	—	—	—	—	—	—	Hawaiian Energy, Inc.
0	0	0	—	0	0	0	—	Highland Petroleum, Inc.
0	0	0	—	0	0	0	—	Highway Oil, Inc.
4	4	0	0	0	0	0	—	Angus I. Hines, Inc.
2	2	0	—	0	0	0	—	Barney Holland Oil Co.
5	5	0	—	0	0	0	—	Hop-In Food Stores
1	1	—	—	0	—	—	—	Hough Fuel
—	—	—	—	—	—	—	—	Huck's Convenience Stores
0	0	0	—	0	0	0	—	Hudson Oil Co.
1	—	—	1	—	—	—	0	Hughes Energy, Inc.
1	—	—	1	0	0	0	—	Hull Oil Co.
1	1	0	25	3	1	—	—	Hunt Refining Co.
0	0	0	—	6	—	—	—	Huntley Jiffy, Inc.
0	0	0	—	0	0	0	—	J. & L. Oil, Inc.
8	3	1	4	2	2	0	—	Jacobus Petroleum Products, Inc.
—	—	—	—	—	—	—	—	Jiffy Stop Inc.
0	—	—	—	0	—	—	—	Johnson Products, Inc.
2	2	—	—	—	—	—	—	Kellett Oil Co.
4	2	2	—	0	0	0	—	Kelley Williamson Co.
0	0	0	—	0	0	0	—	Kent Distributors, Inc.
332	2	0	—	18	16	0	2	Kerr-McGee Refining Corp.
0	0	0	—	0	0	0	—	Kimber Petroleum Corp.
0	—	—	—	0	—	—	—	Kirschner Bros. Oil Co.
0	0	0	—	0	0	0	—	Kunz Oil Co.
0	0	0	—	0	0	0	—	Kwik Shop, Inc.
2	—	—	—	—	2	—	—	Lakeside Oil Co., Inc.
1	1	0	—	0	0	0	—	H.C. Lewis Oil Co.
0	0	0	—	2	2	0	—	Martin Oil Marketing, Ltd.
—	—	—	—	—	—	—	—	Mauger & Co.
350	—	—	350	52	—	—	—	Marathon Petroleum Co.
2	2	—	—	—	—	—	—	McCall Oil Co.
—	—	—	—	—	—	—	—	McDowell Oil Service Inc.
—	—	—	—	—	—	—	—	McLeieer Oil, Inc.
—	—	—	—	—	—	—	—	Merchants Oil Inc.
4	4	0	—	0	0	0	—	Merritt Truax, Inc.
1	1	—	—	4	4	—	—	Mid-Continent Systems, Inc.
—	—	—	—	—	—	—	—	Mid-Missouri Oil Co.
11	7	0	4	1	—	1	—	Mid-States Petroleum
—	—	—	—	—	—	—	—	Midwest Petroleum Co.
0	—	—	—	0	—	—	—	Miller Enterprises, Inc.
0	—	—	—	0	—	—	—	Miller Oil Co.
0	—	—	—	0	—	—	—	Mini-Mart Inc.
0	0	0	0	1	1	0	1	Missouri Terminal Oil Co.
4		4	892	69	69	0	0	Mobil Oil Corp.
—	1	—	—	—	1	—	—	Munro Petroleum Terminal Corp.
0	—	—	—	22	22	—	—	Murphy Oil USA, Inc.
—	—	—	—	—	—	—	—	Musket Corp.
20	—	20	0	0	—	—	—	National Oil & Gas Inc.
32	—	32	—	21	—	21	—	National Oil Co.
—	—	—	—	—	—	—	—	Neal, Inc.
—	—	—	—	—	—	—	—	Nella Oil Co.
1	1	—	—	—	—	—	—	Newell Oil Co., Inc.
—	—	—	—	6	6	—	—	Northville Industries Corp.
0	—	—	—	0	—	—	—	Oils Inc./Wright Industries
2	—	2	—	—	—	—	—	Olympian Oil Co.
—	—	—	—	—	—	—	—	Pacer Oil Co.
1	1	—	—	—	—	—	—	Pal Oil Company Inc.
11	11	—	—	1	1	—	—	Parker Oil Co., Inc.
0	—	—	—	0	—	—	—	Promena, Inc.
1	—	—	—	0	—	—	—	Patterson Oil Co., Inc.
0	—	—	—	0	—	—	—	PDQ Food Stores, Inc.
1	1	—	—	0	—	—	—	Peavy Oil Co.
—	—	—	—	26	1	25	—	Pekin Energy Co.
22	2	—	20	2	2	—	—	Pennzoil Products Co.
7	—	—	—	0	—	—	—	Petroleum Marketers, Inc.
—	—	—	—	5	5	—	—	Petroleum Products Corp.
0	—	—	—	0	—	—	—	Petroleum Sales & Service
2	2	—	—	—	—	—	—	Petrotex Marketing Inc.

			BRANDED SERVICE STATIONS			
Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	Supplied Directly	Supplied Through Jobbers and Commissioned Agents	Lessee/ Dealer-operated	Salary-operated
Pettway Oil Co.	45	2	—	—	—	—
Phillips 66 Co.	9,757	33	239	9,518	7,103	2,645
Piasa Motor Fuels Inc.	26	2	26	—	20	5
JW Pierson Co.	1	1	1	—	—	—
Pride of Texas Dist. Co.	41	1	—	10	10	—
Pride Oil Co., Inc. (Miss.)	19	2	19	—	1	2
Pride Oil Co., Inc. (Tenn.)	12	1	12	—	10	2
Private Brand Services Inc.	1	1	1	—	—	1
Quaker State	196	4	4	192	—	4
Quality Oil Corp. Inc., Limited Partnership	100	2	94	6	55	24
Quarles Petroleum	75	1	10	—	—	—
Quiktrip Corp.	243	5	0	—	—	—
Racetrac Petroleum, Inc.	313	13	313	—	136	177
RECO Petroleum, Inc.	111	3	45	—	—	40
Red Hed Oil Co., Inc.	35	1	6	—	1	—
Reinauer Petroleum Co.	14	1	12	—	12	—
Reinhardt Corp.	35	1	1	—	—	—
Remote Services, Inc.	278	9	0	—	—	—
Republic Oil Corp.	4	1	—	4	—	4
Reynolds Industries, Inc.	4	2	4	—	—	4
Rich Oil Inc.	84	3	84	—	—	—
River Oil Co.	53	2	53	—	42	3
Roach Oil Co.	10	2	10	—	5	5
Robinson Oil Co., Inc.	25	1	24	—	—	24
Royster Oil Co., Inc.	41	1	20	20	20	—
Russell Petroleum Corp.	48	1	2	—	2	—
Sahara Oil Co., Inc.	22	1	6	—	6	—
Santee Oil Co., Inc.	15	1	12	—	7	5
SATCO	30	2	4	—	1	3
SCASCO	40	1	21	—	10	2
Schaeffer Oil, Inc.	7	2	7	—	—	7
Shay Oil Co., Inc.	20	1	20	—	—	20
Shelby Petroleum Corp.	20	2	20	—	—	20
Shell Oil Co.	10,847	41	4,565	—	4,284	281
Shotmeyer Bros. Petroleum Corp.	32	1	28	—	10	—
SICO Co.	145	3	145	—	75	21
Sing Oil Co.	8	1	8	—	—	8
R.L. Smeltz Oil Co., Inc.	18	1	—	18	8	—
Smith-Schafer Oil Co.	5	1	5	0	0	5
SOS Oil Corp.	55	1	55	—	3	—
Southern Counties Oil Co.	50	1	50	—	40	10
Southern Oil Co., Inc.	8	1	—	4	2	1
The Spencer Companies	55	1	5	—	5	—
Stevens Oil Co.	50	1	—	20	20	—
Sugarcreek Corp.	280	2	276	4	180	100
Sumrall Oil Services, Inc.	75	1	0	—	—	—
Sun Refining & Marketing Co.	7,058	28	2,666	3,933	6,266	333
Sunshine Jr. Stores, Inc.	311	—	—	—	—	—
Tartan Oil Corp.	56	2	56	—	—	—
Taylor Oil Co.	21	1	21	—	—	21
Texaco Inc.	15,389	45	2,752	10,423	12,198	690
Texas Star Oil Co.	18	1	—	—	—	—
Thornhill Oil Co., Inc.	28	1	—	28	20	8
Thornton Oil Corp.	102	7	102	—	—	102
Time Saver Store	55	1	—	—	—	—
Tooley Oil Co.	9	1	9	—	—	9
Total Petroleum, Inc.	1,439	20	509	930	457	1,480
Transit Oil Co.	43	1	10	—	—	15
Trenton Oil Co.	37	1	37	—	26	—
Ultra Power Corp.	7	1	7	—	2	4
United Refining Co.	294	3	293	—	—	293
Unocal Corp.	10,926	43	2,844	8,082	2,698	146
Vista Marketing Group Ltd.	15	4	15	0	0	15
Waco Oil Co. Inc.	15	2	—	—	—	15
Wake Up Oil Co., Inc.	38	1	38	—	—	38
Warelubco, Inc.	93	5	92	1	—	—
Warren Equities, Inc.	283	8	283	—	87	196
Webster Oil Co.	32	1	15	—	13	2
Wesson Inc.	40	1	40	—	25	12
Western Marketing Inc	127	1	123	—	—	11
A.T. Williams Oil Co.	88	2	88	—	—	88
J.H. Williams Oil Co., Inc.	87	1	35	1	35	0
The Wills Group, Inc.	80	3	50	—	47	[illegible]
Wooten Oil Co.	33	2	10	—	10	—
World Oil Co.	62	1	62	—	11	[illegible]
York Oil Co., Inc.	12	1	12	—	—	12

				BRANDED JOBBERS/COMMISSIONED AGENTS			
					Number selling . . .		
Commission-operated	Full-service Only	Self-service Only	Self-service/ Full-service	Total	Gasoline Only	Fuel oil Only	Gasoline/ Fuel Oil
—	1	—	10	—	—	—	—
9	2,069	5,537	2,149	1,264	34	2	1,229
1	1	5	20	0	—	—	—
—	—	—	—	—	—	—	—
—	—	—	10	—	—	—	—
16	—	18	1	0	—	—	—
—	10	—	2	0	—	—	—
—	—	1	—	0	—	—	—
0	196	—	—	64	62	59	58
14	4	40	50	0	—	—	—
—	—	—	—	—	—	—	—
—	—	—	—	0	—	—	—
—	—	318	—	0	—	—	—
—	8	31	6	36	36	—	—
—	2	—	4	3	—	—	3
—	12	—	—	—	—	—	—
—	—	—	—	1	1	—	—
—	—	—	—	0	—	—	—
—	—	4	—	0	—	—	—
—	3	1	—	0	—	—	—
84	—	56	28	—	74	—	10
8	—	7	46	—	—	—	—
—	2	—	8	—	—	—	—
—	—	24	—	0	—	—	—
—	4	16	—	—	—	—	—
—	—	—	2	0	—	—	—
—	2	—	4	1	1	—	—
—	—	5	7	1	—	—	1
—	1	—	3	—	—	—	—
—	4	9	8	—	—	—	—
—	—	7	—	—	—	—	—
—	—	20	—	—	20	—	—
—	20	—	—	—	—	—	—
—	231	1,661	2,673	448	—	—	—
18	28	—	—	0	—	—	—
49	59	76	10	0	—	—	—
—	—	8	—	0	—	—	—
—	12	1	5	0	—	—	—
6	—	4	1	0	—	—	—
—	37	6	12	0	—	—	—
—	—	10	40	0	—	—	—
1	3	—	1	—	—	—	—
—	2	—	3	1	1	—	—
—	5	—	15	—	—	—	—
40	80	120	40	5	—	2	3
75	—	75	—	75	75	—	—
—	—	—	—	3,933	—	—	—
—	—	—	—	—	—	—	—
56	—	85	—	0	—	—	—
—	—	21	—	—	—	—	—
[illegible]	2,930	5,287	5,259	1,161	944	—	[illegible]
—	—	18	—	—	—	—	—
—	3	18	7	1	—	—	1
—	4	96	2	0	—	—	—
—	—	—	—	—	—	—	—
—	—	9	—	0	—	—	—
[illegible]	140	1,829	427	478	127	0	[illegible]
—	—	15	—	—	18	—	5
11	37	—	—	—	11	—	—
1	3	4	—	—	—	—	—
—	140	144	—	—	—	—	—
—	100	3,660	7,146	715	—	—	—
—	0	15	0	0	—	—	—
—	4	11	—	—	—	—	—
—	1	5	32	0	—	—	—
—	1	6	86	—	—	—	1
—	[illegible]	169	66	—	—	—	—
—	—	—	15	1	—	—	—
1	10	15	15	0	—	—	—
—	—	123	—	4	—	—	4
—	—	88	—	0	—	—	—
1	0	0	36	1	—	—	1
—	[illegible]	—	60	25	21	[illegible]	—
—	6	4	—	—	—	—	—
[illegible]	—	62	—	48	48	[illegible]	—
—	—	12	—	—	—	2	—

BULK PLANTS				TERMINALS				
	Company-operated				Company-operated			
Total	Salary-operated	Commission-operated	Jobber-operated Bulk Plants	Total	Salary-operated	Commission-operated	Jobber-operated Terminals	Company
2	—	—	—	0	—	—	—	Pittway Oil Co.
1	0	1	—	30	30	0	4	Phillips 66 Co.
1	1	—	—	0	—	—	—	Plaza Motor Fuels Inc
—	—	—	5	—	—	—	1	JW Pierson Co.
—	—	—	—	—	—	—	—	Pride of Texas Dist. Co.
0	—	—	—	0	—	—	—	Pride Oil Co., Inc. (Miss.)
0	—	—	—	0	—	—	—	Pride Oil Co., Inc. (Tenn.)
0	—	—	—	0	—	—	—	Private Brand Services Inc.
1	—	—	1	0	—	—	—	Quaker State
4	4	—	0	0	—	—	0	Quality Oil Corp Inc., Limited Partnersnip
—	—	—	—	—	—	—	—	Quarles Petroleum
—	—	—	—	—	—	—	—	Quiktrip Corp.
0	—	—	—	0	—	—	—	Raceway Petroleum, Inc.
0	—	—	—	0	—	—	—	RECO Petroleum, Inc.
0	—	—	—	0	—	—	—	Red Head Oil Co., Inc.
—	—	—	—	—	—	—	—	Reinauer Petroleum Co.
5	—	—	5	—	—	—	—	Reinhardt Corp.
0	—	—	—	0	—	—	—	Remote Services, Inc.
0	—	—	—	0	—	—	—	Republic Oil Corp.
0	—	—	—	0	—	—	—	Reynolds Industries, Inc.
—	—	—	—	—	—	—	—	Rich Oil Inc.
2	2	—	—	—	—	—	—	River Oil Co.
1	1	—	—	—	—	—	—	Roach Oil Co.
0	—	—	—	0	—	—	—	Robinson Oil Co., Inc.
3	3	—	—	—	—	—	—	Royster Oil Co., Inc.
1	1	—	—	0	—	—	—	Russell Petroleum Corp.
2	—	2	—	0	—	—	—	Sahara Oil Co., Inc.
3	3	—	—	—	—	—	—	Santee Oil Co., Inc.
—	—	—	—	—	—	—	—	SATCO
5	—	—	—	—	—	—	—	SCASCO
—	—	—	—	—	—	—	—	Schaeffer Oil, Inc.
—	—	—	1	—	—	—	—	Shay Oil Co., Inc.
—	—	—	—	—	—	—	—	Shelby Petroleum Corp.
0	—	—	563	109	74	35	—	Shell Oil Co.
1	1	—	—	0	—	—	—	Shotmeyer Bros. Petrolsum Corp.
12	12	—	0	1	1	—	0	SICO Co.
0	—	—	—	2	2	0	0	Sigg Oil Co.
0	—	—	—	0	—	—	—	R.L. Smeltz Oil Co., Inc.
0	—	—	—	0	—	—	—	Smith-Shafer Oil Co.
1	1	—	—	0	—	—	—	SOS Oil Corp.
3	3	—	—	0	—	—	—	Southern Counties Oil Co.
—	—	—	—	—	—	—	—	Southern Oil Co., Inc.
0	—	—	—	—	—	—	—	The Spencer Companies, Inc.
—	—	—	—	—	—	—	—	Stevens Oil Co.
11	8	—	3	3	3	—	—	Sugarcreek Corp.
0	—	—	—	—	—	—	—	Sumrall Oil Services, Inc.
—	—	—	—	37	—	—	—	Sun Refining & Marketing Co.
—	—	—	—	—	—	—	—	Sunshine Jr. Stores, Inc.
0	—	—	—	2	2	—	0	Tartan Oil Corp.
—	—	—	—	—	—	—	—	Taylor Oil Co.
696	20	—	676	68	65	—	3	Texaco Inc.
—	—	—	—	—	—	—	—	Texas Star Oil Co.
4	4	—	—	0	—	—	—	Thornhill Oil Co., Inc.
0	—	—	—	0	—	—	—	Thornton Oil Corp.
—	—	—	—	—	—	—	—	Time Saver Stores
0	—	—	—	0	—	—	—	Tooley Oil Co.
180	2	0	178	10	10	—	1	Total Petroleum, Inc.
—	—	—	—	—	—	—	—	Transit Oil Co.
—	—	—	—	—	—	—	—	Trenton Oil Co., Inc.
—	—	—	—	—	—	—	—	Ultra Power Corp.
—	—	—	—	1	1	—	—	United Refining Co.
698	35	154	509	56	—	—	—	Unocal Corp.
0	—	—	—	1	—	—	—	Vista Marketing Group Ltd.
—	—	—	—	—	—	—	—	Waco Oil Co., Inc.
0	—	—	—	0	—	—	—	Wake Up Oil Co., Inc.
0	—	—	—	0	—	—	—	Warelubco, Inc.
8	8	—	—	1	1	—	—	Warren Equities, Inc.
2	2	—	—	—	—	—	—	Webster Oil Co.
1	1	—	—	0	—	—	—	Wesson, Inc.
4	—	—	—	0	—	—	—	Western Marketing, Inc.
4	4	—	—	0	—	—	—	A.T. Williams Oil Co.
4	3	1	—	—	—	—	—	J.H. Williams Oil Co., Inc.
12	11	1	—	1	1	—	—	The Wills Group, Inc.
—	1	1	—	0	—	—	—	Wooten Oil Co.
3	3	—	—	3	3	—	—	World Oil Co.
—	2	—	—	—	1	—	—	York Oil Co., Inc.

Branded Retail Outlets

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	New England						Middle Atlantic		
			Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Pa.
Advanced Oil Co.	20	2	—	—	—	—	—	—	11	[illegible]	—
Agway Petroleum Corp.	232	9	7	7	7	12	1	3	[illegible]	12	[illegible]
American Petrofina, Inc.	3,458	24	—	—	—	—	—	—	[illegible]	[illegible]	[illegible]
American Refining Group, Inc.	8	1	—	—	—	—	—	—	—	—	8
Amoco Corp.	10,246	30	—	—	—	—	—	46	320	322	431
Ashland Oil, Inc.	2,110	19	—	—	—	—	—	—	—	—	34
Atlantic Refining & Marketing Corp.	1,091	6	—	—	8	—	—	—	317	[illegible]	[illegible]
Automatic Comfort Corp.	49	1	—	—	—	—	—	49	—	—	[illegible]
[illegible] Enterprises	36	1	—	—	—	—	—	[illegible]	—	—	[illegible]
BP America (Ohio)	7,413	28	15	47	60	88	0	61	0	116	404
Bagwell Oil Co., Inc.	30	2	—	—	—	—	—	—	—	—	—
E M Bailey	60	3	—	—	—	—	—	—	—	—	—
Bedford Valley Petroleum Corp.	66	3	—	—	—	—	—	—	[illegible]	—	[illegible]
Bell Fuel Corp.	5	2	—	—	—	—	—	—	—	4	[illegible]
Best Oil Co.	16	1	—	—	—	—	—	—	—	—	[illegible]
Bostick Brothers, Inc.	6	1	—	—	—	—	—	—	—	—	—
Bray Terminals, Inc.	75	—	—	—	5	—	—	—	70	—	—
Browning Oil Co.	28	1	—	—	—	—	—	—	—	—	—
Buhrmaster Energy Group	2	1	—	—	—	—	—	—	2	—	[illegible]
Dennis K. Burke, Inc.	1	1	—	—	—	1	—	—	—	—	[illegible]
Campbell Oil Co.	83	1	—	—	—	—	—	—	—	—	[illegible]
Cannon Oil Corp.	17	3	—	—	—	—	—	—	—	—	—
Cel Oil Products Corp.	13	1	—	—	—	—	—	—	—	—	—
CENEX	972	14	—	—	—	—	—	—	—	—	—
Center Independent Oil Co.	20	1	—	—	—	—	—	—	—	—	[illegible]
Certified Oil Co.	175	3	—	—	—	—	—	—	—	—	[illegible]
Champlain Oil Co.	102	4	—	10	56	1	—	—	[illegible]	—	[illegible]
Chaney Oil Company of Vicksburg Inc.	16	1	—	—	—	—	—	—	—	—	—
Chevron Corp.*	11,969	34	—	—	—	—	—	—	—	—	2
Circle K. Corp.	847	22	1	—	—	4	—	2	—	—	—
CITGO	7,097	40	141	128	74	[illegible]	43	[illegible]	[illegible]	[illegible]	[illegible]
Clark Oil & Refining Corp.	946	12	—	—	—	—	—	—	—	[illegible]	[illegible]
Coastal Corporation	650	22	—	—	—	2	—	—	—	[illegible]	[illegible]
Colonial Oil Industries, Inc.	62	3	—	—	—	—	—	—	—	—	—
Como Oil Co.	95	3	—	—	—	—	—	—	—	—	—
Conoco Inc.	4,843	37	—	—	—	—	—	—	—	—	—
Consumers Gasoline Stations Inc.	29	—	—	—	—	—	—	—	—	[illegible]	[illegible]
Consumers Oil	46	2	—	—	—	—	—	[illegible]	—	40	[illegible]
Crown Central Petroleum Corp.	730	8	—	—	—	—	—	—	—	[illegible]	[illegible]
Crystal Flash Petroleum Corp.	25	1	—	—	—	—	—	—	—	—	—
C.S.C. Oil Co.	13	2	—	—	—	—	—	—	—	—	—
Dairy Mart Convenience Stores Inc.	429	15	—	4	—	14	3	28	13	—	2
[illegible]	5	1	—	—	—	—	—	—	—	[illegible]	[illegible]
DeBlois Oil Co.	41	2	—	—	—	12	29	—	—	[illegible]	[illegible]
Delta Group USA Inc.	40	2	—	—	—	—	—	—	—	[illegible]	[illegible]
Drakes Refinery Stations	5	1	—	—	—	—	—	—	—	—	—
East Coast Oil Corp.	40	1	—	—	—	—	—	—	—	—	—
Emro Marketing Co.	1,376	18	—	—	—	—	—	—	—	—	—
Englefield Oil Co.	245	2	—	—	—	—	—	—	—	—	[illegible]
Exxon Company U.S.A.	12,456	37	[illegible]	82	—	141	13	[illegible]	[illegible]	[illegible]	[illegible]
Farm & Home Oil Co.	40	2	—	—	—	—	—	—	—	[illegible]	[illegible]
Fleetman, Inc. dba Fuelman	86	3	—	—	—	—	—	—	—	—	—
Foster Oil Co.	70	1	—	—	—	—	—	—	—	—	—
H.N. Funkhouser & Co.	15	1	—	—	—	—	—	—	—	—	—
Getty Petroleum Corp.	—	—	—	—	—	—	—	—	—	—	[illegible]
Global Petroleum Corp.	137	9	—	—	—	27	1	1	—	[illegible]	[illegible]
[illegible] Oil Co.	15	1	—	—	—	—	—	—	—	—	[illegible]
Gresham Petroleum Co.	30	—	—	—	—	—	—	—	—	—	—
Gulf Oil	4,463	12	203	188	124	644	110	353	832	772	877
Highway Oil, Inc.	212	22	—	2	2	—	—	—	23	—	19
[illegible]	55	3	—	—	—	—	—	—	—	—	[illegible]
Holland Oil Co.	80	1	—	—	—	—	—	—	—	—	[illegible]
Hop-In Food Stores	151	4	—	—	—	—	—	—	—	—	[illegible]
Huck's Convenience Stores	95	4	—	—	—	—	—	—	—	—	—
Hugh's Energy Inc.	40	1	—	—	—	—	—	—	—	—	—
Hull Oil Co.	28	2	—	—	—	—	—	—	—	—	—
Hunt Refining Co.	130	2	—	—	—	—	—	—	—	[illegible]	[illegible]
Huntley Jiffy Stores Inc.	80	2	—	—	—	—	—	—	—	[illegible]	[illegible]
Jacobus Petroleum Products, Inc.	39	1	—	—	—	—	—	—	—	[illegible]	[illegible]
Jiffy Stop, Inc.	11	1	—	—	—	—	—	—	—	—	—
J & L Oil, Inc.	58	3	—	—	—	—	—	—	—	—	—
Johnson Products, Inc.	65	6	27	22	5	2	1	—	7	—	—
Kelley Williamson Co.	35	2	—	—	—	—	—	—	—	—	[illegible]
Kerr-McGee Refining Corp.	1,341	21	—	—	—	—	—	—	—	—	[illegible]

*Excludes Airport & Marine Outlets/New Car Dealerships

in the United States

South Atlantic									East North Central					East South Central			
Del.	Md.	D.C.	Va.	W.Va.	N.C.	S.C.	Ga.	Fla.	Ohio	Ind.	Ill.	Mich.	Wis.	Ky.	Tenn.	Ala.	Miss.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	13	—	56	163	364	366	—	—	4	—	—	7	132	127	23
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16	253	44	366	—	650	294	623	678	324	377	962	576	440	—	610	275	196
—	—	—	34	369	—	—	—	25	406	45	23	23	74	924	1	—	—
10	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	36	—	—
23	25	0	229	81	764	428	886	529	1,154	30	2	284	0	506	693	538	440
—	1	—	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	16	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	53	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	13	—
—	—	—	—	—	—	13	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	5	175	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	12	—	—	—	—	168	—	—	—	—	5	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16
—	160	17	516	231	198	111	793	749	29	12	1	—	—	732	98	764	362
—	—	—	—	—	52	35	170	48	2	1	—	1	—	—	22	25	20
17	129	2	506	60	226	56	280	697	86	92	171	83	252	41	210	329	112
—	—	—	—	3	—	—	—	—	198	116	240	181	93	21	—	—	—
—	—	—	39	3	7	2	12	82	—	—	33	—	—	11	22	—	—
—	—	—	—	—	6	23	33	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13	—	—	27	6	35	24	48	40	23	3	46	3	53	11	65	37	65
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	98	—	45	—	203	169	98	24	—	—	—	—	—	—	—	71	—
—	—	—	—	—	—	—	—	—	—	25	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	7	—	—	—	—	6	—	—	—
—	—	—	—	—	17	—	—	19	103	21	26	1	—	160	17	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	3	—	37	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—
—	—	—	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	5	41	77	5	82	407	158	145	174	59	62	11	13	21
—	—	—	—	28	—	—	—	—	217	—	—	—	—	—	—	—	—
46	354	44	731	301	1,106	617	398	462	11	—	—	—	—	—	615	326	182
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26
—	—	—	—	—	—	—	—	—	—	—	—	70	—	—	—	—	—
—	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	2	—	5	4	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
80	10	—	—	—	—	—	—	—	270	—	—	—	—	—	—	—	30
—	5	—	—	5	—	—	2	28	35	9	—	3	—	8	7	2	2
—	—	—	53	1	1	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	60	—	—	—	—	—	—	—	—
—	—	—	82	—	32	—	—	—	—	—	—	46	—	—	12	—	—
—	—	—	—	—	—	—	—	—	—	2	90	—	—	2	1	—	—
—	—	—	—	—	—	—	—	40	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	27	—	—	—	—	—	—	—	1	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60	40
—	—	—	—	—	—	—	10	50	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	38	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	11	—	—	—	—
—	—	—	—	—	—	—	5	—	—	41	—	—	12	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	31	—	4	—	—	—	—
—	—	—	1	—	—	—	—	7	—	31	[illegible]	—	[illegible]	4	17	[illegible]	[illegible]

Branded Retail Outlets (cont'd)

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	New England						Middle Atlantic		
			Maine	N.H.	Vt.	Mass	R.I.	Conn.	N.Y.	N.J.	Pa.
Kimber Petroleum Corp.	89	1	—	—	—	—	—	—	—	89	—
Kimbro Oil Co.	60	1	—	—	—	—	—	—	—	—	—
Kwik Shop Inc.	34	2	—	—	—	—	—	—	—	—	—
Kirschner Bros. Oil Co.	10	3	—	—	—	—	—	—	—	2	5
Lakeside Oil Co., Inc.	111	1	—	—	—	—	—	—	—	—	—
H.C. Lewis Oil Co.	30	1	—	—	—	—	—	—	—	—	—
The Lyden Company	170	1	—	—	—	—	—	—	—	—	—
Marathon Petroleum Co.	2,527	8	—	—	—	—	—	—	—	—	10
Martin Oil Marketing, Ltd.	43	2	—	—	—	—	—	—	—	—	—
Mauger & Co.	41	1	—	—	—	—	—	—	—	—	41
McDowell Oil Service Inc.	29	1	—	—	—	—	—	—	—	—	29
McLeieer Oil, Inc.	65	1	—	—	—	—	—	—	—	—	—
Mid-Continent Systems Inc.	34	4	—	—	—	—	—	—	—	—	—
Mid-States Petroleum	121	—	—	—	—	—	—	—	—	—	—
Midwest Petroleum Co.	127	2	—	—	—	—	—	—	—	—	—
Miller Enterprises, Inc.	86	—	—	—	—	—	—	—	—	—	—
Miller Oil Co.	100	2	—	—	—	—	—	—	—	—	—
Mobil Oil Corp.	11,074	36	240	158	166	566	73	351	1,442	472	686
Munro Petroleum & Terminal Corp.	32	1	—	—	—	—	—	—	—	—	—
Murphy Oil USA, Inc.	663	14	—	—	—	—	—	—	—	—	—
National Oil & Gas Inc.	91	2	—	—	—	—	—	—	—	—	—
National Oil Co.	371	14	—	—	—	—	—	—	—	—	—
Northville Industries Corp.	110	2	—	—	—	—	—	—	92	11	—
Pal Oil Company Inc.	64	2	—	—	2	—	—	—	62	—	—
Parker Oil Co., Inc.	160	3	—	—	—	—	—	—	—	—	—
Patterson Oil Co., Inc.	36	1	—	—	—	—	—	36	—	—	[illegible]
PDQ Food Stores, Inc.	[illegible]	4	—	—	—	—	—	—	—	—	—
Pennzoil Products Co.	543	8	—	—	—	—	—	—	12	—	155
Petroleum Marketers, Inc.	157	2	—	—	—	—	—	—	—	—	—
Pettway Oil Co.	45	—	—	—	—	—	—	—	—	—	—
Phillips 66 Co.	9,757	33	—	—	—	—	—	—	—	—	—
Piasa Motor Fuels Inc.	26	2	—	—	—	—	—	—	—	—	—
J. W. Pierson Co.	1	—	—	—	—	—	—	—	—	1	—
Pride Oil Co. (Miss.)	19	2	—	—	—	—	—	—	—	—	—
Pride Oil Co., Inc. (Tenn.)	12	1	—	—	—	—	—	—	—	—	—
Private Brand Services, Inc.	1	1	—	—	—	—	—	—	—	—	—
Quaker State Corp.	108	4	—	—	—	—	—	—	38	—	[illegible]
Quality Oil Co. Inc., Ltd. Partnership	100	2	—	—	—	—	—	—	—	—	—
Quarles Petroleum	75	1	—	—	—	—	—	—	—	—	—
Quiktrip Corp.	243	5	—	—	—	—	—	—	—	—	—
Racetrac Petroleum, Inc.	313	13	—	—	—	—	—	—	—	—	—
RECO Petroleum, Inc.	111	3	—	—	—	—	—	—	—	—	75
Red Hat Oil Co., Inc.	[illegible]	1	—	—	—	—	—	—	—	—	—
Reinauer Petroleum Co.	14	1	—	—	—	—	—	—	—	14	—
Reinhardt Corp.	26	1	—	—	—	—	—	—	26	—	—
Remote Services, Inc.	278	9	—	4	—	—	—	—	13	—	—
Reynolds Industries, Inc.	4	2	2	—	—	2	—	—	—	—	—
Rich Oil	84	—	—	—	—	—	—	—	—	—	—
River Oil Co.	53	2	—	—	—	—	—	—	—	—	—
Roach Oil Co.	10	—	—	—	—	—	—	—	—	—	—
Royster Oil Co., Inc.	41	1	—	—	—	—	—	—	—	—	—
Russell Petroleum Corp.	48	1	—	—	—	—	—	—	—	—	—
Santee Oil Co.	15	1	—	—	—	—	—	—	—	—	—
SATCO	30	2	26	4	—	—	—	—	—	—	—
Save-X USA, Inc.	14	2	—	—	—	—	—	—	—	—	—
SCASO	40	1	—	—	—	—	—	40	—	—	—
Shelby Petroleum Corp.	20	2	—	—	—	—	—	—	—	—	—
Shell Oil Co.	10,847	41	0	12	0	228	55	141	257	282	89
Shotmeyer Bros. Petroleum Corp.	32	1	—	—	—	—	—	—	—	32	—
SICO	145	3	—	—	—	—	—	—	—	41	102
SING Oil Co.	[illegible]	1	—	—	—	—	—	—	—	—	—
R.L. Smoltz Oil Co. Inc.	10	1	—	—	—	—	—	—	—	—	[illegible]
Smith-Shaler Oil Co.	5	1	—	—	—	—	—	—	—	—	[illegible]
SOS Oil Corp.	55	1	—	—	—	—	—	—	55	—	—
Southern Oil Co., Inc.	8	1	—	—	—	—	—	—	—	—	—
Southern States Co-Op	120	6	—	—	—	—	—	—	—	—	—
The Spencer Co., Inc.	[illegible]	1	—	—	—	—	—	—	—	—	—
Stevens Oil Co.	50	1	—	—	—	—	—	—	—	—	—
Sugarcreek Corp.	[illegible]	2	—	—	—	—	—	—	[illegible]	—	—
Sumrall Oil Services, Inc.	75	1	—	—	—	—	—	—	—	—	—
Sun Refining & Marketing Co.	7,058	28	62	101	50	391	109	235	1,321	446	1,517
Sunshine Jr. Stores, Inc.	311	—	—	—	—	—	—	—	—	—	—

South Atlantic									East North Central					East South Central			
Del.	Md.	D.C.	Va.	W.Va.	N.C.	S.C.	Ga.	Fla.	Ohio	Ind.	Ill.	Mich.	Wis.	Ky.	Tenn.	Ala.	Miss.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60	—	—
—	—	—	—	—	—	—	—	—	—	—	10	—	—	—	—	—	—
—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	111	—	—	—	—
—	—	—	—	30	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	170	—	—	—	—	—	—	—	—
—	—	—	—	14	—	—	—	—	863	523	370	560	31	176	—	—	—
—	—	—	—	—	—	—	—	—	—	18	25	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	65	—	—	—	—	—
—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	2	30	—
—	—	—	—	—	—	—	—	—	18	20	—	83	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	25	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	49	—	51	—	—	—	—	—	—	—	—	—	—	—	—
58	130	1	141	54	174	0	15	436	292	164	441	521	528	58	131	20	0
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	32
—	—	—	14	—	56	18	54	96	—	—	—	5	102	11	70	16	24
—	—	—	—	—	—	—	—	—	4	87	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	8	18	2	—	—	7	24	16
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	156	—	3	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	20	—	—	—	—
—	—	—	1	114	—	—	—	—	221	4	—	12	—	24	—	—	—
—	—	—	147	10	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	43	—	—
—	7	—	80	29	673	320	404	542	—	350	553	79	250	107	326	370	180
—	—	—	—	—	—	—	—	—	—	—	24	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	18
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—
—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
—	—	—	—	35	—	—	—	—	63	—	—	—	—	—	—	—	—
—	—	—	3	—	97	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	1	—	22	—	4	12	47	36	—	—	—	—	—	3	39	104	7
—	—	—	24	12	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	36	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	17	—	—	19	—	21	26	—	—	160	17	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	22	—	—	—	—	40	—	—	—	—	22	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	80	—	3
—	3	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	41	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48	—
—	—	—	—	—	—	15	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	11	—	3	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	18	—	—
40	242	9	325	11	418	223	373	658	466	336	655	657	198	288	326	407	280
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	[illegible]	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	60	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	75
24	103	7	23	87	79	8	—	—	551	197	289	441	4	79	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Branded Retail Outlets (cont'd)

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	New England						Middle Atlantic		
			Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	N.J.	Pa.
Taylor Oil Co.	**55**	**2**	—	—	—	—	—	—	—	—	—
TCR Inc.	**21**	—	—	—	—	—	—	—	—	—	—
Texaco Inc.	**15,369**	**45**	**172**	**301**	**94**	**392**	**81**	**273**	**307**	**319**	[illegible]
Thornhill Oil Co., Inc.	28	1	—	—	—	—	—	—	—	—	—
Thornton Oil Corp.	102	7	—	—	—	—	—	4	5	—	—
Total Petroleum, Inc.	509	20	—	—	—	—	—	—	—	—	—
Transit Oil Co.	**43**	—	—	—	—	—	—	—	—	—	—
Trenton Oil Co., Inc.	**37**	**1**	—	—	—	—	—	—	—	**37**	—
Ultra Power Corp.	**7**	**1**	—	—	—	—	—	—	**7**	—	—
United Refining Co.	294	3	—	—	—	—	—	—	148	—	129
Unocal Corp.	10,926	43	—	—	—	—	—	2	2	2	39
Vista Marketing Group Ltd.	15	4	—	—	—	—	—	—	—	—	—
Waco Oil Co., Inc.	**15**	**2**	—	—	—	—	—	—	—	—	—
Wake Up Oil Co., Inc.	**36**	**1**	—	—	—	—	—	—	—	—	—
Warelubco, Inc.	**93**	**5**	—	—	—	—	—	—	—	—	—
Warren Equities, Inc.	283	8	9	8	—	65	56	57	41	31	16
WAVAHO Oil Co.	25	1	—	—	—	—	—	—	—	—	—
Wesson, Inc.	40	1	—	—	—	—	—	40	—	—	—
A.T. Williams Oil Co.	**88**	**2**	—	—	—	—	—	—	—	—	—
J.H. Williams Oil Co., Inc.	**87**	**1**	—	—	—	—	—	—	—	—	—
The Wills Group, Inc.	**90**	**3**	—	—	—	—	—	—	—	—	—
Wooten	33	2	—	—	—	—	—	—	—	—	—
York Oil Co., Inc.	12	1	—	—	—	—	—	—	—	—	—

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	West North Central						
			Minn.	Iowa	Mo.	N.D.	S.D.	Neb.	Ka
Ada Resources & Energy, Inc.	**97**	**1**	—	—	—	—	—	—	
American Petrofina, Inc.	**3,456**	**24**	**73**	**36**	**135**	**3**	**24**	**30**	[illegible]
Amoco Corp.	**10,248**	**30**	**504**	**433**	**451**	[illegible]	[illegible]	[illegible]	[illegible]
Anchor Gasoline Corp.	61	1	—	—	—	—	—	—	
Arco Products Company	1,673	5	—	—	—	—	—	—	
Ashland Oil, Inc.	2,110	19	109	8	3	1	5	—	
BP America (Ohio)	**7,413**	**28**	—	—	—	—	—	—	
Beacon Oil Co.	**360**	**2**	—	—	—	—	—	—	
Brennan Petroleum Co.	**1**	**1**	—	—	—	—	—	—	
Cardon Corp.	50	1	—	—	—	—	—	—	
Cenex	972	14	215	50	—	150	107	44	
Chapman, Inc.	32	1	—	—	—	—	—	—	
Chevron Corp.*	**11,969**	**34**	—	—	—	—	—	—	
W.R. Childless Oil Co. Inc.	**56**	**1**	—	—	—	—	—	—	
Circle K Corp.	**647**	**22**	—	—	—	—	—	—	
Citgo Petroleum Corp.	7,697	40	42	40	160	0	0	0	[illegible]
Clark Oil & Refining Corp.	946	12	21	7	51	—	—	—	11
The Coastal Corp.	850	22	8	107	108	—	6	54	210
Conoco Inc.	**4,843**	**37**	**137**	[illegible]	[illegible]	[illegible]	**64**	**190**	[illegible]
Cook & Cooley, Inc.	**70**	**1**	—	—	—	—	—	—	—
Crockett Oil Co.	**20**	**4**	—	—	**14**	—	—	—	**4**
Curt's Oil Co.	22	5	—	—	—	—	—	—	—
Curtis Parker Oil Co. Inc.	22	1	—	—	—	—	—	—	
Dairy Mart Convenience Stores, Inc.	429	15	—	1	—	—	—	—	
Diamond Shamrock Refining & Marketing Co.	**1,973**	**5**	—	—	**5**	—	—	—	
Dickey Inc.	**5**	**1**	—	**5**	—	[illegible]	—	—	
Emro Marketing Co.	**1,375**	**18**	—	—	—	—	—	—	
Exxon Co., U.S.A.	12,456	37	—	—	—	—	11	—	
Fas-Stop, Inc.	4	1	—	—	—	—	—	—	

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*Excludes Airport & Marina Outlets—New Car Dealerships.

South Atlantic									East North Central					East South Central			
Del.	Md.	D.C.	Va.	W.Va.	N.C.	S.C.	Ga.	Fla.	Ohio	Ind.	Ill.	Mich.	Wis.	Ky.	Tenn.	Ala.	Miss.
—	—	—	10	—	45	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	—
73	237	8	582	38	991	495	596	672	—	—	37	—	—	57	426	605	419
—	—	—	—	—	—	—	—	—	—	28	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	11	14	15	—	—	45	—	—	—
—	—	—	—	—	—	—	—	—	9	2	34	470	77	1	19	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	17	—	—	—	—	—	—	—	—
—	7	—	354	167	735	260	579	691	710	469	544	696	443	221	388	716	332
—	—	—	—	—	—	—	—	—	—	—	4	—	6	—	—	—	—
—	—	—	—	—	—	—	—	—	5	—	—	—	—	10	—	—	—
—	—	—	—	—	—	—	—	—	—	38	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	8	—	3	64	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	—
—	—	—	38	—	60	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	87	—	—	—	—	—	—	—	—	—
4	74	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	32	1	—	—	—	—	—	—	—	—	—	—	—
—	—	—	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—

West South Central				Mountain								Pacific				
Ark.	La.	Okla.	Texas	Mont.	Idaho	Wyo.	Colo.	N.M.	Ariz.	Utah	Nev.	Wash.	Ore.	Calif.	Alaska	Hawaii
—	—	—	97	—	—	—	—	—	—	—	—	—	—	—	—	—
111	121	183	1,147	—	—	—	7	147	5	—	—	—	—	—	—	—
—	—	—	—	—	18	61	198	—	—	—	—	—	—	—	—	—
—	61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	66	—	69	268	164	1,106	—	—
—	—	—	—	22	—	1	—	—	—	—	—	3	—	—	—	—
1	—	1	2	—	—	—	—	3	—	—	—	—	—	2	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	2	348	—	—
—	—	—	—	—	—	—	—	—	50	—	—	—	—	—	—	—
—	—	—	—	69	43	8	—	—	—	6	—	59	35	—	—	—
—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
—	—	—	32	—	—	—	—	—	—	—	—	—	—	—	—	—
[illegible]	536	214	2,270	66	132	36	101	231	192	131	66	443	299	1,740	125	143
—	—	—	55	—	—	—	—	—	—	—	—	—	—	—	—	—
3	164	81	140	—	—	—	—	41	—	12	—	7	—	2	—	4
187	182	274	1,055	0	0	0	193	21	2	127	0	0	0	1	0	0
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1	—	33	42	—	—	3	22	—	—	—	—	—	—	—	—	—
[illegible]	535	444	740	261	40	60	409	137	12	126	7	87	—	62	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	70	—	—
1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
5	2	12	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
96	32	80	1,516	—	—	—	153	92	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4	[illegible]	1	7	—	—	—	—	—	—	—	—	—	—	—	—	—
351	534	2	2,414	218	36	24	49	115	263	20	29	229	94	804	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Branded Retail Outlets (cont'd.)

Company	TOTAL BRANDED RETAIL OUTLETS	NUMBER OF STATES WHERE GASOLINE BRAND IS MARKETED	West North Central						
			Minn.	Iowa	Mo.	N.D.	S.D.	Neb.	Kan.
Fleetman Inc. dba Fuelman	86	3	—	—	—	—	—	—	—
Fleischli Oil Co.	5	1	—	—	—	—	—	—	—
F.O. Fletcher Oil, Inc. dba Fletcher Oil Co.	16	3	—	—	—	—	—	—	—
Flying J Inc.	90	13	—	1	1	8	—	—	—
Franko Oil Co.	49	2	—	—	—	—	—	—	—
Gasco Gasoline, Inc.	56	1	—	—	—	—	—	—	—
General Oil Co.	35	1	—	—	—	—	—	—	—
Giant Industries, Inc.	21	3	—	—	—	—	—	—	—
Jack Griffith Petroleum	12	—	—	—	—	—	—	—	—
Gull Industries Inc.	125	2	—	—	—	—	—	—	—
Harris Enterprises Inc.	22	2	—	—	—	—	—	—	—
Hawaiian Independent Refinery Inc.	21	1	—	—	—	—	—	—	—
Highland Petroleum Inc.	9	5	—	—	—	—	1	3	—
Highway Oil, Inc.	212	22	—	1	13	—	4	—	[illegible]
Barney Holland Oil Co.	90	1	—	—	—	—	—	—	—
Horn Distributing Co., Inc.	41	1	—	—	—	—	—	—	—
Hudson Farms Corp.	11	2	—	—	—	—	—	—	—
JS&J Service Inc.	4	—	—	—	—	—	—	—	—
Kellett Oil Co.	10	1	—	—	10	—	—	—	—
Kent Distributors, Inc.	8	1	—	—	—	—	—	—	—
Kerr-McGee Refining Corp.	1,941	21	30	141	151	8	53	107	[illegible]
Kunz Oil Co.	29	1	29	—	—	—	—	—	—
Kwik Shop, Inc.	34	2	—	24	—	—	—	—	—
McCall Oil Co.	1	1	—	—	—	—	—	—	—
Merchants Oil Co.	—	—	—	—	—	—	—	—	—
Merritt Truax, Inc.	40	1	—	—	—	—	—	—	—
Mid-Missouri Oil Co.	15	1	—	—	15	—	—	—	—
Midwest Petroleum Co.	127	2	—	—	102	—	—	—	—
Mini Mart Inc.	117	6	—	—	—	21	9	4	—
Missouri Terminal Oil Co.	35	2	—	—	33	—	—	—	—
Mobil Oil Corp.	11,074	36	325	0	93	25	0	0	0
Murphy Oil USA, Inc.	663	14	63	—	—	—	—	—	—
Musket Corp.	118	—	—	—	—	—	—	—	[illegible]
National Oil Co.	371	14	—	14	3	—	—	8	7
Neal, Inc.	28	1	—	—	—	—	—	—	—
Nella Oil Co.	29	—	—	—	—	—	—	—	—
Newell Oil Co.	15	1	—	—	—	—	—	—	—
Olympian Oil Co.	45	1	—	—	—	—	—	—	—
PDQ Food Stores, Inc.	69	4	16	—	—	—	—	—	—
Petrotex Marketing Inc.	23	1	—	—	—	—	—	—	—
Phillips 66 Co.	9,757	33	428	399	680	29	102	273	346
Piasa Motor Fuels Inc.	26	2	—	—	2	—	—	—	—
Promarx, Inc.	17	1	—	—	—	—	—	—	—
Pride of Texas Dist. Co.	41	1	—	—	—	—	—	—	—
Quiktrip Corp.	243	5	—	48	58	—	—	—	[illegible]
Racetrac Petroleum, Inc.	313	13	—	—	—	—	—	—	—
Remote Services, Inc.	278	9	—	1	—	—	—	—	—
Republic Oil Corp.	4	1	—	—	—	—	—	—	—
Robinson Oil Co., Inc.	25	1	—	—	—	—	—	—	—
Sahara Oil Co., Inc.	22	1	—	—	—	—	—	—	—
Schaeffer Oil, Inc.	7	2	—	—	—	2	5	—	—
Shay Oil Co., Inc.	20	1	—	—	—	—	—	—	—
Shell Oil Co.	10,847	41	0	15	209	0	0	0	0
Southern Counties Oil Co.	50	1	—	—	—	—	—	—	—
Sun Refining & Marketing Co.	7,058	26	—	[illegible]	253	—	—	10	[illegible]
Sunshine Jr. Stores, Inc.	311	—	—	—	—	—	—	—	—
Texaco Inc.	15,069	45	[illegible]	[illegible]	[illegible]	—	102	[illegible]	[illegible]
Texas Star Oil Co.	18	1	—	—	—	—	—	—	—
Thornton Oil Corp.	102	7	—	—	—	—	—	—	—
Time Saver Stores	55	1	—	—	—	—	—	—	—
Tooley Oil Co.	9	1	—	—	—	—	—	—	—
Total Petroleum, Inc.	509	20	121	129	438	4	24	157	[illegible]
Unocal Corp.	[illegible]	43	[illegible]	100	[illegible]	2	[illegible]	[illegible]	—
Vista Marketing Group Ltd.	15	4	—	1	4	—	—	—	—
Warelubco, Inc.	93	5	—	16	2	—	—	—	—
Webster Oil Co.	32	1	—	—	32	—	—	—	—
Western Marketing, Inc.	137	1	—	—	—	—	—	—	—
World Oil Co.	[illegible]	1	—	—	—	—	—	—	—

West South Central				Mountain								Pacific				
Ark.	La.	Okla.	Texas	Mont.	Idaho	Wyo.	Colo.	N.M.	Ariz.	Utah	Nev.	Wash.	Ore.	Calif.	Alaska	Hawaii
—	50	—	10	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	2	—	—	—	—	—	—	3	11	—	—	—
—	—	—	1	—	5	2	3	1	3	15	—	14	4	13	—	—
—	—	—	—	—	—	—	—	—	—	—	—	9	40	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	56	—	—
35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	1	10	10	—	—	—	—	—	—	—
—	—	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	100	25	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	2	20	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
1	—	2	—	—	—	—	2	—	—	—	—	—	—	—	—	—
—	—	—	12	—	—	4	3	—	—	—	—	—	—	—	—	—
—	—	—	90	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	41	—	—	—	—	—	—	—	—
—	—	10	1	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	1	—	—	—	—	3	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—
204	11	441	250	—	—	—	—	12	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	40	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	23	—	39	21	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0	351	0	920	0	0	0	0	0	240	0	10	245	280	1,205	1	0
6	49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2	—	81	9	—	—	—	8	3	—	—	—	—	—	—	—	—
32	15	43	174	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	28	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	—	—
—	—	—	15	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	46	—	—
—	—	—	—	—	—	—	29	—	—	—	5	—	—	—	—	—
—	—	—	23	—	—	—	—	—	—	—	—	—	—	—	—	—
287	302	556	1,333	—	92	52	262	156	4	173	2	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17
—	—	—	41	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	12	—	23	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	[illegible]	—	—
—	—	—	—	—	—	—	—	—	22	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	20	—	—	—	—	—	—	—
91	523	24	674	0	53	0	14	101	52	24	39	264	264	1,460	0	64
—	—	—	—	—	—	—	—	—	—	—	—	—	—	50	—	—
[illegible]	—	401	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
[illegible]	[illegible]	467	1,875	—	75	87	[illegible]	147	205	210	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
—	—	—	18	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—
—	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	[illegible]	—	—
40	—	436	34	—	—	3	64	14	—	—	—	—	—	—	—	—
[illegible]	113	3	48	1	12	—	1	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	127	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Number of Employees

(As of Jan. 1, 1988)

	Mining	Refining		Transportation		Wholesale	Retail	
	Oil and Gas Extraction	Petroleum Refining	Oils and Greases	Pipelines, Except Gas	Gas Distribution	Petroleum Products	Gasoline Stations	Total Industry
Alabama	1,312	423	100	83	3,123	5,116	7,951	18,108
Alaska	8,063	261	0	922	244	530	1,069	11,089
Arizona	105	N/A	N/A	122	1,866	1,311	8,662	12,066
Arkansas	2,576	N/A	N/A	N/A	2,154	2,795	5,330	12,855
California	32,282	24,007	863	1,184	11,455	14,999	63,918	148,708
Colorado	14,300	588	1,004	92	2,036	2,216	8,271	28,505
Connecticut	150	N/A	88	N/A	1,290	1,600	9,384	12,492
Delaware	0	772	9	4	316	268	1,475	2,844
D.C.	68	69	0	0	509	150	908	1,792
Florida	680	48	207	70	2,140	6,630	29,777	39,550
Georgia	71	94	137	466	4,161	5,829	17,508	28,266
Hawaii	N/A	432	0	0	343	591	3,615	4,981
Idaho	18	0	0	16	332	1,401	3,051	4,818
Illinois	3,799	8,074	271	891	7,865	9,408	25,922	56,230
Indiana	599	2,316	295	410	2,946	3,284	17,537	27,387
Iowa	29	0	53	154	1,265	3,155	12,258	16,912
Kansas	9,733	2,302	365	1,820	2,896	2,247	8,543	27,906
Kentucky	2,290	3,683	114	140	3,241	3,055	10,374	22,897
Louisiana	51,600	11,200	800	1,000	6,200	5,200	7,600	83,700
Maine	N/A	0	0	N/A	N/A	1,329	3,297	4,626
Maryland	35	N/A	N/A	0	N/A	2,675	13,450	16,160
Massachusetts	290	N/A	377	N/A	4,957	2,694	15,708	24,026
Michigan	4,216	1,615	781	279	6,811	5,829	23,367	42,898
Minnesota	N/A	N/A	157	194	2,257	2,580	16,606	21,794
Mississippi	5,359	1,534	112	0	2,124	2,964	5,905	17,998
Missouri	63	11	411	230	4,867	6,030	19,058	30,658
Montana	2,010	765	1	78	299	1,262	3,144	7,549
Nebraska	592	N/A	N/A	102	2,246	1,896	6,683	11,518
Nevada	222	28	0	28	738	453	3,831	5,298
New Hampshire	1	0	3	3	280	460	2,813	3,540
New Jersey	148	6,248	983	162	2,265	3,727	18,872	32,405
New Mexico	8,893	647	32	361	3,077	2,195	4,053	19,258
New York	1,785	5,673	407	124	6,716	8,845	28,076	51,626
North Carolina	5	N/A	224	121	2,665	5,905	10,888	19,808
North Dakota	2,601	221	147	158	1,045	2,210	2,390	8,772
Ohio	7,159	5,336	[illegible]	675	7,382	6,646	30,253	58,236
Oklahoma	43,438	6,636	439	1,375	5,293	4,299	7,090	68,569
Oregon	87	91	N/A	N/A	N/A	2,451	8,801	11,430
Pennsylvania	4,100	8,200	800	700	8,500	9,900	27,300	59,500
Rhode Island	7	N/A	N/A	N/A	901	409	2,383	3,700
South Carolina	31	0	N/A	N/A	574	3,737	7,685	12,027
South Dakota	100	0	0	64	126	1,528	2,606	4,424
Tennessee	351	338	128	42	1,824	5,225	11,892	19,800
Texas	171,253	29,665	1,147	4,708	26,710	23,101	34,045	290,629
Utah	1,903	778	11	79	2,307	1,376	5,080	11,534
Vermont	0	0	0	0	103	430	2,067	2,600
Virginia	N/A	N/A	55	N/A	3,012	8,335	15,482	26,884
Washington	191	1,571	N/A	79	N/A	2,892	10,347	14,880
West Virginia	4,298	435	114	97	4,837	1,495	4,844	16,120
Wisconsin	11	138	73	164	2,848	3,343	16,456	23,030
Wyoming	8,886	905	6	241	1,065	1,030	2,884	15,007
Total	385,690	125,095	11,499	17,436	160,271	196,925	610,492	1,517,408

Note: Data differ from the Bureau of Labor Statistics national averages to confidentiality rules.

Source: Various Government Agencies.

How Distillates Were Used in 1987

(Add 000 gal.)

Use	1987	1986	% Change	% Share of Total Distillates Use in 1987	% Share of Total Distillates Use in 1986
Residential	7,426,412	7,294,814	1.8%	16.3%	16.3%
Commercial	4,279,375	4,293,095	(.3)	9.4	9.6
Industrial	2,917,624	2,684,102	8.7	6.4	6.0
Oil Company	881,729	749,992	17.6	1.9	1.7
Farm	3,241,968	3,380,046	(4)	7.1	7.6
Elec. Utilities	646,073	614,361	5.2	1.4	1.4
Railroad	3,147,661	3,099,616	1.6	6.9	6.9
Vessel Bunkering	2,223,258	2,034,215	9.3	4.9	4.6
On-Highway Diesel	18,172,934	17,926,508	1.4	39.8	40.1
Military	884,392	760,417	16.3	1.9	1.7
Off-Highway Diesel	1,732,106	1,699,252	1.9	3.8	3.8
All other	75,816	140,161	(46.1)	.2	0.3
U.S. Total	**45,629,346**	**44,677,080**	**2.1**	—	—

Source: Energy Information Administration, Petroleum Marketing Monthly, June 1988.

How Residual Was Used in 1987

(Add 000 gal.)

Use	1987	1986	% Change	% Share of Total Residual Use in 1987	% Share of Total Residual Use in 1986
Commercial	1,764,531	1,663,005	6.1%	9.1%	7.6%
Industrial	3,810,345	4,492,393	(15.2)	19.7	20.7
Oil Company	502,615	766,034	(34.4)	2.6	3.5
Elec. Utilities	7,631,898	9,041,608	(15.6)	39.4	41.6
Railroad	294	569	(47.8)	—	—
Vessel Bunkering	5,259,272	5,287,347	(.5)	27.1	24.3
Military	191,045	180,918	5.6	1	0.8
All other	223,168	312,241	(28.5)	1.2	1.4
U.S. Total	**19,383,168**	**21,744,114**	**(10.9)**	—	—

Source: Energy Information Administration, Petroleum Marketing Monthly, June 1988.

How Kerosine Was Used in 1987

(Add 000 gal.)

Use	1987	1986	% Change	% Share of Total Kerosine Use in 1987	% Share of Total Kerosine Use in 1986
Residential	671,350	641,742	4.6%	46.3	44.6%
Commercial	267,437	307,704	(13.1)	18.5	20.4
Industrial	160,057	173,859	(7.9)	11	11.5
Farm	34,761	47,948	(27.5)	2.4	3.2
All other	315,900	334,906	(5.7)	21.8	22.2
U.S. Total	**1,449,504**	**1,506,162**	**(3.8)**	—	—

Source: Energy Information Administrations, Petroleum Marketing Monthly, June 1988.

How New Homes Are Heated

Region	New Homes Completed (Add 000)	Share of New Homes by Fuels and Percentages			
		Gas	Electric	Oil	Other
Northeast	187	45%	23%	30%	1%
Midwest	191	84	12	(*)	3
South	456	36	62	1	2
West	249	71	21	(*)	7
Total 1988	**1,083**	**54**	**37**	**5**	**3**
Total 1987	**1,120**	**52**	**40**	**5**	**3**

(*) Negligible

Source: Characteristics of New Housing 1988 (preliminary data).

Gas: Who Uses It for Heat

Region	% of Gas-Heated Homes to Total Gas-Using Homes	Consumers Added in 1987 (Add 000)		
		New Homes	Existing Homes	Total Added
New England	69.5%	24.2	18.4	42.6
Mid-Atlantic	65.5	87.3	40.4	127.7
East North Central	94.6	128.7	31.8	160.5
West North Central	97.6	54.3	10.8	65.2
South Atlantic	89.3	79.3	22.9	102.2
East South Central	97.5	21.4	7.5	28.9
West South Central	92.0	23.1	1.7	24.8
Mountain	95.4	42.2	6.4	48.6
Pacific	93.9	264.3	14.4	278.8
Total	**88.3**	**724.7**	**154.4**	**879.1**
% Change '87 vs. '86	—	5.7%	4.0%	5.4%

Source: American Gas Assn., House Heating Survey 1987, Table #3.

Gas Heat Equipment Shipments

Class and Type of Equipment	1988	1987	% Change
Central Heating:			
Furnaces	2,092,165	2,072,925	.9%
Boilers	211,320	189,662	11.4
Space Heating:			
Wall Furnaces Vented	173,200	166,540	4.0
RV Systems	235,518	234,771	.3
Water Heaters:			
Gas	3,956,469	3,950,684	.1
Electric	3,333,490	3,396,395	(1.9)
Oil(a)	34,000	37,000	(8.8)

(a) Estimated by fuel oil industry sources for comparison.

Source: Gas Appliance Manufacturers Assn.

Distillate Deliveries in 1987...

(Add 000 gal.)

Destination	Residential 1987	Residential 1986	Commercial 1987	Commercial 1986	Industrial 1987	Industrial 1986
PAD District 1						
New England States						
Connecticut	487,757	486,135	131,751	148,011	53,835	36,171
Maine	229,415	238,602	62,311	65,571	20,677	9,610
Massachusetts	760,180	776,428	255,013	280,327	144,029	50,658
New Hampshire	165,599	135,995	70,359	37,673	11,542	5,912
Rhode Island	134,202	125,898	37,406	33,861	21,208	8,384
Vermont	78,813	77,598	27,382	22,567	7,615	9,179
Central Atlantic States						
Delaware	56,317	44,361	15,196	10,267	8,024	8,054
District of Columbia	17,187	16,728	27,269	41,454	319	185
Maryland	231,865	202,295	81,249	64,719	25,500	38,621
New Jersey	732,455	725,030	327,048	373,217	82,160	86,418
New York	1,521,225	1,430,302	620,814	691,598	71,588	60,736
Pennsylvania	800,822	792,213	237,251	252,099	212,659	168,109
Lower Atlantic States						
Florida	30,240	19,440	162,109	143,564	57,029	37,009
Georgia	14,393	15,290	42,160	41,664	42,447	44,271
North Carolina	238,714	209,081	123,234	101,547	83,480	75,319
South Carolina	56,813	49,350	36,463	29,475	19,171	21,825
Virginia	278,832	272,675	109,206	118,807	82,046	78,909
West Virginia	26,618	23,444	18,922	31,480	72,406	36,842
Total	**5,883,446**	**5,640,866**	**2,385,143**	**2,487,902**	**1,015,737**	**776,212**
PAD District 2						
Illinois	80,088	92,199	69,207	83,345	169,101	126,605
Indiana	115,985	121,016	58,620	77,236	129,888	114,395
Iowa	51,164	56,288	31,893	28,593	16,967	16,432
Kansas	897	1,028	11,391	14,341	18,973	16,670
Kentucky	31,939	28,656	22,393	43,004	154,523	144,857
Michigan	219,002	247,025	73,364	124,094	54,714	59,349
Minnesota	163,249	167,864	42,344	45,223	34,865	22,092
Missouri	27,478	34,414	77,984	82,227	38,988	28,078
Nebraska	8,467	11,882	14,868	13,962	4,107	7,828
North Dakota	37,603	44,336	10,166	13,168	9,518	11,851
Ohio	174,803	192,443	86,873	89,300	111,988	121,633
Oklahoma	418	1,256	17,136	11,825	21,875	27,761
South Dakota	35,955	43,684	17,378	11,378	5,119	3,794
Tennessee	9,578	6,966	46,757	59,292	42,537	46,832
Wisconsin	242,832	289,801	75,446	72,527	25,829	24,204
Total	**1,199,458**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PAD District 3						
Alabama	1,252	1,624	48,271	40,758	89,473	93,129
Arkansas	65	45	15,094	7,814	22,016	15,462
Louisiana	79	371	78,948	169,154	50,978	64,296
Mississippi	669	121	33,410	18,549	24,766	15,803
New Mexico	533	1,465	29,700	17,035	100,920	79,485
Texas	3,441	867	343,872	227,237	210,129	341,168
Total	**6,038**	**4,494**	**549,295**	**480,548**	**498,282**	**609,432**
PAD District 4						
Colorado	2,481	2,846	40,282	17,036	20,577	17,980
Idaho	24,134	26,816	17,741	11,969	17,848	15,040
Montana	10,364	14,741	12,817	16,926	21,270	21,347
Utah	4,254	3,132	30,925	36,221	32,638	37,248
Wyoming	1,390	1,128	11,472	16,481	50,001	39,058
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PAD District 5						
Alaska	67,769	44,716	44,289	35,147	6,805	19,149
Arizona	814	448	22,266	15,991	38,623	38,770
California	11,983	10,059	289,047	237,284	274,630	230,602
Hawaii	35	30	20,297	7,584	4,832	4,526
Nevada	13,652	10,342	30,003	20,679	35,521	22,697
Oregon	73,365	85,852	68,111	56,324	32,295	22,725
Washington	127,228	128,928	97,895	101,559	44,765	42,972
Total	**294,846**	**280,374**	**571,909**	**474,567**	**437,472**	**381,440**
U.S. Total	**7,426,412**	**7,294,814**	**4,279,375**	**4,293,095**	**2,917,624**	**2,664,102**

...By End Use

(Add 000 gal.)

N.B.: In 1985, EIA began publishing two sets of product tables, one for sales, the other for deliveries. Both are based on the same raw data. The sales tables reflect the questionnaire totals; the deliveries table are adjustments to correlate them with other industry data. EIA's original objective was to switch to the sales tables and drop the deliveries tables. However, because of statistical disparities, this switch-over has been delayed indefinitely. The data on these pages are the deliveries tables and are compatible with prior NPN Factbook summaries even though the latter were then labelled "sales".

	Oil Company		Farm		Electric Utility	
	1987	1986	1987	1986	1987	1986
PAD District 1						
New England States						
Connecticut	2,053	500	2,513	656	730	443
Maine	141	87	3,930	3,636	1,647	495
Massachusetts	771	998	2,457	1,912	11,951	7,708
New Hampshire	21	5	1,596	1,502	1,124	835
Rhode Island	269	263	144	156	756	1,483
Vermont	74	9	7,579	5,744	2,374	678
Central Atlantic States						
Delaware	631	542	6,111	6,835	14,956	3,435
District of Columbia	—	—	—	—	34,230	21,385
Maryland	1,198	821	21,196	18,717	31,557	46,790
New Jersey	1,351	2,256	17,706	19,661	16,700	56,841
New York	5,366	4,417	43,021	40,734	43,499	70,469
Pennsylvania	17,119	17,948	53,781	34,130	53,043	29,560
Lower Atlantic States						
Florida	785	895	81,896	117,634	45,995	48,933
Georgia	398	806	69,287	87,845	5,382	3,927
North Carolina	454	110	38,153	50,195	18,118	13,821
South Carolina	991	860	19,480	20,178	7,437	5,839
Virginia	1,569	1,233	31,598	24,328	16,091	12,520
West Virginia	7,497	11,204	5,888	4,150	12,448	12,312
Total	**40,688**	**42,957**	**406,337**	**438,013**	**318,039**	**337,475**
PAD District 2						
Illinois	13,180	16,500	172,477	184,740	28,744	17,200
Indiana	868	1,519	90,380	94,791	18,922	11,895
Iowa	381	63	175,766	215,867	4,318	1,901
Kansas	6,661	10,656	132,207	136,183	2,616	2,531
Kentucky	803	761	50,860	35,571	10,039	5,666
Michigan	2,136	5,476	73,910	92,352	29,468	29,831
Minnesota	333	498	144,186	182,380	6,840	5,687
Missouri	540	790	57,913	71,293	11,901	10,756
Nebraska	631	663	140,097	163,030	2,418	259
North Dakota	6,068	4,939	86,566	106,838	1,713	2,055
Ohio	10,341	18,851	70,863	67,924	23,368	20,101
Oklahoma	25,779	24,537	41,092	47,636	177	320
South Dakota	13	20	83,315	93,749	74	1,001
Tennessee	911	2,045	38,275	41,699	4,048	97
Wisconsin	332	427	77,064	93,392	2,344	5,787
Total	**[illegible]**	**[illegible]**	**1,434,909**	**1,618,414**	**146,880**	**113,119**
PAD District 3						
Alabama	3,304	3,636	43,392	33,872	8,530	8,836
Arkansas	4,103	4,053	137,183	170,808	10,946	11,887
Louisiana	264,374	233,721	179,567	149,420	6,506	5,606
Mississippi	40,164	31,602	124,457	111,383	1,105	3,100
New Mexico	16,542	16,564	28,544	30,723	[illegible]	1,597
Texas	340,970	256,724	318,162	279,621	34,322	17,173
Total	**669,459**	**546,300**	**831,305**	**775,823**	**62,726**	**48,278**
PAD District 4						
Colorado	5,012	7,883	57,527	64,307	4,341	5,029
Idaho	97	172	63,953	58,011	208	424
Montana	1,735	3,090	39,971	48,017	1,549	944
Utah	3,571	2,410	11,30[illegible]	14,399	8,849	16,375
Wyoming	20,435	18,423	13,394	17,[illegible]70	4,830	3,6[illegible]
Total	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**	**19,877**	**[illegible]**
PAD District 5						
Alaska	9,312	10,516	76	183	25,736	37,152
Arizona	173	179	28,016	29,018	3,581	3,542
California	56,670	27,370	233,467	198,254	12,191	8,777
Hawaii	3,286	663	20,187	12,563	54,577	38,505
Nevada	653	693	6,304	6,612	1,415	3,613
Oregon	597	141	44,260	48,106	95	151
Washington	1,023	1,327	50,871	51,059	1,456	1,278
Total	**71,714**	**40,888**	**383,181**	**347,795**	**99,052**	**93,010**
U.S. Total	**881,729**	**749,992**	**3,241,968**	**3,380,046**	**646,073**	**614,361**

Distillate Deliveries 1987...

(Add 000 gal.)

	Railroad		Vessel Bunkering		On-Highway	
Destination	1987	1986	1987	1986	1987	1986
PAD District 1						
New England States						
Connecticut	176	—	1,669	2,690	188,172	179,230
Maine	8,847	10,282	2,611	2,996	157,344	140,312
Massachusetts	4.202	6,011	49,710	51,946	282,982	267,065
New Hampshire	468	1,830	764	334	54,975	50,895
Rhode Island	88	475	2,125	4,439	55,520	44,667
Vermont	2,719	3,059	320	310	50,607	40,202
Central Atlantic States						
Delaware	90	103	5,713	4,186	58,756	52,855
District of Columbia	402	2,848	29	27	21,822	21,413
Maryland	30,052	33,424	9,355	24,517	289,433	274,995
New Jersey	37,882	28,843	120,272	135,508	446,805	450,858
New York	31,033	21,605	35,468	13,507	633,543	614,646
Pennsylvania	72,994	59,823	32,523	26,594	868,850	810,753
Lower Atlantic States						
Florida	120,725	88,036	125,796	116,019	654,444	680,975
Georgia	88,701	70,226	9,210	14,520	772,080	710,528
North Carolina	57,175	64,774	9,493	14,240	580,195	548,890
South Carolina	38,296	31,346	15,699	14,172	282,618	293,541
Virginia	117,060	118,358	38,282	33,115	501,785	468,608
West Virginia	12,284	13,444	47,194	26,522	150,200	132,361
Total	**623,197**	**554,488**	**506,253**	**485,642**	**6,049,931**	**5,782,794**
PAD District 2						
Illinois	117,558	138,398	19,633	57,066	724,862	685,139
Indiana	186,866	194,145	12,014	18,136	698,704	681,413
Iowa	42,180	43,508	1,222	1,531	322,226	288,308
Kansas	146,252	132,880	—	—	351,717	258,237
Kentucky	122,088	98,752	86,395	92,986	366,046	388,106
Michigan	51,430	45,907	3,934	238	611,402	478,218
Minnesota	40,827	46,730	1,431	1,740	313,256	288,380
Missouri	30,314	34,883	36,882	37,806	467,083	472,721
Nebraska	128,525	109,764	—	—	201,094	186,890
North Dakota	37,165	32,804	960	1	88,164	97,288
Ohio	136,386	148,782	1,862	2,976	751,521	797,886
Oklahoma	55,498	80,690	1,523	381	383,820	386,795
South Dakota	1,664	419	—	—	89,862	90,150
Tennessee	89,038	118,134	82,357	73,382	582,038	527,288
Wisconsin	39,168	43,977	8,020	15,680	384,232	384,056
Total	**1,223,759**	**1,242,684**	**256,813**	**301,496**	**6,226,136**	[illegible]
PAD District 3						
Alabama	69,164	66,491	66,895	37,112	404,744	368,011
Arkansas	29,116	28,504	721	1,381	322,040	295,187
Louisiana	68,469	104,069	418,116	308,847	344,059	349,332
Mississippi	12,438	21,437	64,719	68,456	289,999	287,753
New Mexico	49,472	43,608	—	—	189,499	182,996
Texas	352,146	304,516	345,293	299,698	1,319,054	1,437,192
Total	**580,804**	**568,624**	**895,743**	**715,494**	**2,869,395**	**2,920,471**
PAD District 4						
Colorado	60,228	62,883	—	—	184,224	186,918
Idaho	20,024	20,250	97	114	102,878	98,008
Montana	67,173	65,986	—	—	106,998	105,048
Utah	34,532	35,113	—	—	140,894	139,467
Wyoming	56,858	61,348	—	—	181,974	102,219
Total	**238,811**	[illegible]	**97**	**114**	**716,968**	[illegible]
PAD District 5						
Alaska	3,926	2,098	71,125	58,752	61,624	97,190
Arizona	37,439	49,061	—	559	269,026	260,167
California	237,239	241,723	301,011	217,325	1,256,749	1,570,607
Hawaii	39	234	39,061	46,608	20,219	19,618
Nevada	38,042	34,211	—	—	119,411	97,170
Oregon	103,546	106,826	35,403	26,304	269,015	244,854
Washington	60,857	53,158	117,752	181,921	314,460	332,326
Total	**481,090**	**487,308**	**564,352**	**531,469**	**2,310,504**	**2,641,932**
U.S. Total	**3,147,661**	**3,099,616**	**2,223,258**	**2,034,215**	**18,172,934**	**17,926,508**

...By End Use (Continued)

(Add 000 gal.)

Destination	Military 1987	Military 1986	Off-Highway 1987	Off-Highway 1986	All Other 1987	All Other 1986	Total 1987	Total 1986
PAD District 1								
New England States								
Connecticut	3,906	237	11,894	6,221	976	762	885,432	861,057
Maine	1,825	180	13,662	9,974	138	5	502,548	481,750
Massachusetts	5,603	2,542	14,873	11,250	189	861	1,551,961	1,457,705
New Hampshire	946	231	9,256	6,778	7	128	316,658	242,117
Rhode Island	1,027	48	1,085	2,999	80	250	253,910	222,923
Vermont	736	31	4,544	6,005	136	208	182,901	165,589
Central Atlantic States								
Delaware	1,242	4,963	2,948	2,126	—	93	169,983	137,819
District of Columbia	10,618	11,903	165	197	13	2,921	112,055	119,063
Maryland	13,528	10,976	17,940	22,511	4,012	6,977	756,885	745,363
New Jersey	8,370	1,175	22,854	32,789	524	2,874	1,814,128	1,915,470
New York	3,807	1,447	41,920	22,979	475	3,294	3,051,777	2,975,734
Pennsylvania	22,535	454	38,908	54,692	1,294	1,840	2,411,580	2,248,217
Lower Atlantic States								
Florida	32,760	30,309	71,958	56,331	591	2,897	1,384,330	1,342,043
Georgia	9,868	6,736	33,482	32,714	4,886	1,630	1,092,293	1,030,158
North Carolina	4,938	13,728	32,484	27,480	5,343	39,375	1,191,782	1,158,561
South Carolina	2,449	4,025	16,671	20,303	2,272	1,151	500,360	492,066
Virginia	25,011	29,765	28,440	32,150	3,231	3,954	1,233,151	1,194,423
West Virginia	336	32	20,510	26,054	—	628	374,302	318,474
Total	**149,504**	**118,781**	**383,592**	**373,553**	**24,169**	**69,849**	**17,786,034**	**17,106,532**
PAD District 2								
Illinois	883	908	68,587	52,348	1,873	8,535	1,444,273	1,473,068
Indiana	4,571	4,437	13,385	13,335	4,340	1,420	1,333,573	1,333,836
Iowa	310	30	13,173	10,757	1,883	490	861,491	867,727
Kansas	3,670	336	21,062	23,209	1,368	1,362	499,033	596,465
Kentucky	5,971	5,863	21,543	26,983	1,598	1,194	882,991	853,066
Michigan	6,150	2,236	46,309	33,403	3,031	2,890	1,075,846	1,121,014
Minnesota	2,404	708	17,221	21,299	2,936	1,558	769,690	798,141
Missouri	6,679	3,375	33,224	13,970	3,602	731	812,428	771,022
Nebraska	1,280	384	17,881	16,809	241	900	517,586	504,149
North Dakota	2,512	1,405	5,562	6,550	390	15	286,029	310,589
Ohio	9,808	7,805	28,130	85,128	1,375	1,707	1,409,305	1,504,194
Oklahoma	2,046	1,538	29,677	39,107	4,616	7,078	583,665	591,104
South Dakota	2,098	398	11,838	8,926	285	314	247,801	253,832
Tennessee	1,552	1,589	63,348	63,728	1,033	386	943,467	941,370
Wisconsin	1,210	158	22,425	24,476	4,475	2,212	883,384	916,886
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	**12,830,184**	[illegible]
PAD District 3								
Alabama	6,712	2,558	49,742	38,361	1,711	2,649	793,189	897,038
Arkansas	1,759	2,944	31,618	30,192	866	231	575,527	568,508
Louisiana	62,644	31,871	66,459	49,815	2,331	3,685	1,542,530	1,470,267
Mississippi	68,112	36,284	41,235	26,960	1,690	1,905	702,763	623,353
New Mexico	6,933	1,529	22,965	32,212	138	366	446,563	407,580
Texas	222,093	182,423	232,075	274,751	2,067	1,744	3,723,624	3,623,112
Total	**368,253**	**257,608**	**444,094**	**452,291**	**8,803**	**10,580**	**7,784,196**	**7,389,858**
PAD District 4								
Colorado	11,582	6,596	28,248	48,762	328	4,768	414,808	425,878
Idaho	2,735	1,456	18,379	12,099	291	4,251	269,385	248,406
Montana	435	166	12,586	14,725	145	1,965	275,031	253,970
Utah	1,314	4,113	16,630	26,822	338	864	285,248	311,964
Wyoming	459	449	22,880	23,500	4,726	4,783	368,196	298,279
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PAD District 5								
Alaska	27,611	12,647	25,802	15,427	227	2,793	344,301	335,767
Arizona	1,422	1,598	35,560	48,784	93	47	437,012	468,164
California	233,580	232,081	201,486	168,855	1,639	5,163	3,109,692	3,148,100
Hawaii	13,312	61,104	4,288	4,946	—	—	180,134	196,381
Nevada	1,967	2,865	25,818	30,823	458	4,460	273,244	234,165
Oregon	3,256	1,067	50,498	32,960	247	42	680,689	625,351
Washington	15,649	28,581	58,938	54,491	1,326	480	892,223	978,080
Total	**296,795**	**399,943**	**402,390**	**356,287**	**3,992**	**12,986**	**5,917,296**	**5,986,008**
U.S. Total	**884,392**	**760,417**	**1,732,106**	**1,699,252**	**75,815**	**140,661**	**45,629,346**	**44,677,080**

Source: Energy Information Administration, Petroleum Marketing Monthly, July 1988.

Deliveries of Kerosine in 1987...

(Add 000 gal.)

Destination	Residential 1987	Residential 1986	Commercial 1987	Commercial 1986	Industrial 1987	Industrial 1986
PAD District 1						
New England States						
Connecticut	9,778	9,001	2,685	1,428	553	486
Maine	15,166	13,302	994	544	69	45
Massachusetts	12,750	10,660	1,203	6,176	617	415
New Hampshire	9,692	7,523	877	422	523	31
Rhode Island	2,445	3,447	130	86	46	8
Vermont	6,034	6,192	793	1,275	17	59
Central Atlantic States						
Delaware	8,114	6,804	401	360	46	—
District of Columbia	257	237	13	6	23	21
Maryland	27,318	17,639	553	1,054	228	459
New Jersey	12,336	13,717	2,630	2,305	3,319	1,091
New York	77,279	47,048	7,645	4,863	954	408
Pennsylvania	51,713	63,317	7,880	8,399	5,315	5,646
Lower Atlantic States						
Florida	15,166	11,838	11,227	18,056	105	109
Georgia	3,125	4,315	815	1,546	296	463
North Carolina	77,210	70,788	3,307	3,660	3,905	4,952
South Carolina	27,767	21,119	1,267	1,177	1,940	1,584
Virginia	52,477	52,692	4,750	3,068	740	1,007
West Virginia	8,241	9,682	1,438	1,181	1,333	695
Total	**416,867**	**369,320**	**48,609**	**55,604**	**20,027**	**17,480**
PAD District 2						
Illinois	8,525	8,571	1,545	4,146	8,069	3,580
Indiana	14,902	16,064	1,826	6,813	8,750	6,210
Iowa	2,123	3,159	220	79	46	41
Kansas	887	781	587	381	94	101
Kentucky	16,457	26,462	2,478	6,327	4,184	8,627
Michigan	12,007	14,098	543	570	2,044	1,839
Minnesota	2,781	3,720	200	167	28	34
Missouri	1,970	2,448	231	410	52	88
Nebraska	486	768	159	898	2,370	4,258
North Dakota	210	321	42	14	—	16
Ohio	39,581	50,041	8,977	6,037	2,858	3,843
Oklahoma	605	382	184	232	1,102	[illegible]
South Dakota	544	906	24	37	1	4
Tennessee	16,651	13,989	4,083	3,837	2,566	2,131
Wisconsin	3,743	3,00[illegible]	175	190	111	146
Total	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**
PAD District 3						
Alabama	39,629	36,147	32,481	16,124	14,725	14,986
Arkansas	14,052	14,225	3,180	3,695	6,074	8,318
Louisiana	6,451	8,853	13,974	11,874	21,412	33,638
Mississippi	18,424	21,366	4,172	10,455	26,287	7,014
New Mexico	14,457	11,795	10,166	7,336	9,297	12,649
Texas	39,370	25,990	54,384	99,974	33,669	35,393
Total	**132,382**	**118,376**	**118,356**	**149,458**	**111,463**	**116,9[illegible]**
PAD District 4						
Colorado	580	1,068	984	464	124	91
Idaho	213	189	61	58	8	28
Montana	44	490	1	249	—	
Utah	287	155	579	207	98	462
Wyoming	73	51	73	76	118	123
Total	**1,517**	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**
PAD District 5						
Alaska	11	9	65,325	66,292	5	1
Arizona	42	45	280	262	356	453
California	1,117	2,515	2,292	1,542	5,199	2,476
Hawaii	0	0	25	40	2	2
Nevada	275	583	52	64	148	44
Oregon	138	296	72	100	14	7
Washington	552	685	10,984	711	178	8,885
Total	**2,135**	**4,133**	**79,029**	**71,011**	**5,902**	**11,867**
U.S. Total	**671,350**	**641,742**	**267,437**	**307,704**	**160,057**	**173,859**

...By End Use

(Add 000 gal.)

N.B.: In 19[illegible], EIA began publishing two sets of product tables, one for sales, the other for deliveries. Both are based on the same raw data. The sales tables reflect the questionnaire total; the deliveries table are adjustments to correlate them with other industry data. EIA's original objective was to switch to the sales tables and drop the deliveries tables. However, because of statistical disparities, this switch-over has been delayed indefinitely. The data on these pages are the deliveries tables and are compatible with prior NPN Factbook summaries even though the latter were then labelled "sales".

	Oil Company		Farm		Electric Utility	
	1987	1986	1987	1986	1987	1986
PAD District 1						
New England States						
Connecticut	15	1	906	1,028	13,937	11,944
Maine	412	273	449	76	17,091	14,240
Massachusetts	4	5	418	345	14,992	17,600
New Hampshire	15	10	98	111	11,205	8,097
Rhode Island	0	0	27	43	2,648	3,583
Vermont	543	312	226	258	7,612	8,097
Central Atlantic States						
Delaware	283	23	15	23	8,858	7,209
District of Columbia	—	—	27	14	320	278
Maryland	362	85	624	690	29,085	19,927
New Jersey	233	14	13,183	8,915	31,700	26,043
New York	1,381	1,022	12,770	11,849	100,030	65,192
Pennsylvania	2,595	1,787	2,698	2,058	70,200	81,207
Lower Atlantic States						
Florida	73	65	811	591	27,383	30,659
Georgia	784	621	277	252	5,297	7,198
North Carolina	2,170	3,633	1,509	901	88,101	83,933
South Carolina	608	478	1,113	797	32,695	25,154
Virginia	1,328	651	934	2,382	60,229	59,800
West Virginia	371	226	1,137	720	12,521	12,503
Total	**11,178**	**9,208**	**37,222**	**31,052**	**533,904**	**482,664**
PAD District 2						
Illinois	791	885	263	174	11,199	17,1[illegible]
Indiana	786	2,921	944	390	22,193	30,998
Iowa	1,324	1,559	54	43	4,098	4,882
Kansas	845	1,002	661	902	2,654	3,147
Kentucky	722	2,311	110	175	23,962	45,10[illegible]
Michigan	364	843	605	56	15,593	17,709
Minnesota	336	1,151	26	146	3,351	5,240
Missouri	341	31	86	225	2,680	3,197
Nebraska	306	1,739	621	17	3,840	7,133
North Dakota	24	322	1	1	278	675
Ohio	2,942	3,467	1,501	985	53,865	55,369
Oklahoma	155	382	12	573	2,339	3,247
South Dakota	133	476	4	5	706	1,509
Tennessee	76	91	867	225	24,870	20,244
Wisconsin	207	686	46	2	4,284	4,032
Total	**9,424**	**17,442**	**5,784**	[illegible]	[illegible]	[illegible]
PAD District 3						
Alabama	153	419	3,770	5,522	90,757	73,198
Arkansas	1,139	1,206	4,455	1,649	28,900	29,093
Louisiana	391	2,047	5,373	71,214	47,601	127,626
Mississippi	2,791	9,201	178	270	51,851	48,305
New Mexico	4,673	567	1,166	6,206	39,758	38,553
Texas	4,400	7,338	256,055	214,459	388,479	383,154
Total	**13,547**	**20,779**	**271,598**	**299,320**	**647,346**	**699,930**
PAD District 4						
Colorado	239	221	569	321	2,705	2,255
Idaho	9	18	2	5	292	292
Montana	210	52	2	2	258	753
Utah	38	12	—	28	369	351
Wyoming	30	22	62	68	334	303
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PAD District 5						
Alaska	—	0	0	49	65,341	68,351
Arizona	3	2	1	1	683	762
California	63	91	671	108	9,342	6,732
Hawaii	0	0	—	1	27	43
Nevada	2	3	2	14	480	708
Oregon	1	15	5	3	229	421
Washington	7	12	1	8	11,721	10,302
Total	**76**	**123**	**680**	**183**	**87,822**	**87,318**
U.S. Total	**34,761**	**47,948**	**315,900**	**334,908**	**1,449,504**	**1,506,162**

Source: Energy Information Administration, Petroleum Marketing Monthly, July 1988

Residual Fuel Oil Deliveries in 1986...

(Add 000 gal.)

	Commercial		Industrial		Oil Company		Electric Utility	
Destination	1987	1986	1987	1986	1987	1986	1987	1986
PAD District 1								
New England States								
Connecticut	38,676	42,735	58,832	61,826	—	18	776,584	492,896
Maine	20,992	38,903	123,998	184,305	—	14	165,440	172,921
Massachusetts	84,667	91,246	212,160	361,232	—	—	1,318,023	1,537,091
New Hampshire	8,384	13,900	42,797	52,626	—	—	124,555	157,651
Rhode Island	15,103	30,396	24,845	30,614	—	—	31,645	44,017
Vermont	2,718	3,598	7,241	8,937	—	—	—	—
Central Atlantic States								
Delaware	4,931	4,190	22,959	6,065	4,802	12,524	97,830	51,886
District of Columbia	24,423	26,639	—	—	—	—	—	—
Maryland	54,307	23,105	22,337	23,844	1,503	1,433	180,516	179,662
New Jersey	70,965	72,365	179,640	121,092	1,370	5,150	319,839	925,289
New York	563,858	531,542	149,824	158,769	1,088	1,044	2,106,237	2,051,424
Pennsylvania	35,688	25,192	123,550	101,060	41,188	34,920	418,891	513,833
Lower Atlantic States								
Florida	60,201	74,526	52,888	100,130	16	529	1,175,781	1,638,824
Georgia	29,535	27,679	43,151	41,221	305	77	6,566	4,809
North Carolina	1,868	6,414	53,775	157,469	1,437	1,051	—	5,410
South Carolina	1,005	877	54,483	45,909	—	937	—	7,152
Virginia	29,434	25,981	83,272	99,644	537	1,297	210,172	128,130
West Virginia	109	248	12,997	26,701	2,947	4,535	—	19
Total	**1,046,861**	**1,039,537**	**1,378,749**	**1,581,444**	**55,193**	**63,530**	**6,932,080**	**7,911,014**
PAD District 2								
Illinois	40,296	45,170	80,391	65,546	39,679	95,579	133,836	36,833
Indiana	12,308	12,336	76,709	104,498	64,869	98,794	—	—
Iowa	786	1,958	4,049	23,822	—	—	—	8
Kansas	13	440	9,710	19,061	4,757	4,472	—	—
Kentucky	37	1,610	27,978	24,008	9,666	11,961	—	—
Michigan	5,936	11,673	78,214	108,530	10,834	10,075	28,588	43,893
Minnesota	5,700	15,579	38,002	61,919	9,313	11,387	—	140
Missouri	5,281	6,533	23,636	19,021	—	—	10,994	9,224
Nebraska	12	—	9,072	9,892	17	—	5,047	—
North Dakota	1,475	3,961	4,803	5,139	8,274	8,693	287	522
Ohio	2,135	8,120	72,490	85,857	11,898	19,075	2,878	3,515
Oklahoma	720	—	13,901	19,152	—	437	—	—
South Dakota	325	358	2,049	2,620	—	—	—	—
Tennessee	2,932	6,528	10,967	2*,924	230	—	—	—
Wisconsin	5,115	12,798	42,699	29,751	4,345	5,627	—	—
Total	**83,134**	**137,964**	**494,878**	**666,736**	**163,913**	**285,041**	**181,487**	**188,138**
PAD District 3								
Alabama	162,819	171,254	232,027	170,639	7,972	—	—	1,869
Arkansas	—	1,062	112,818	268,661	—	—	156	639
Louisiana	113,758	70,937	895,919	518,760	15,614	12,916	814	172,403
Mississippi	9,666	27,837	27,073	377,768	—	898	5,781	73,925
New Mexico	—	—	24,033	67,879	168	182	546	723
Texas	227,900	75,964	339,009	327,488	46,577	40,600	869	129,116
Total	**514,143**	**347,054**	**1,630,878**	**1,731,195**	**70,331**	**54,597**	**8,167**	**378,075**
PAD District 4								
Colorado	—	12,833	8,860	30,793	—	45	—	—
Idaho	2,477	571	13,912	3,005	—	—	—	—
Montana	3,804	6,611	2,499	1,482	—	—	—	66
Utah	25,024	7,514	25,894	21,033	36,852	34,214	—	—
Wyoming	7,886	19,342	3,930	5,036	12,977	6,419	—	—
Total	**42,488**	**48,871**	**55,086**	**61,436**	**49,829**	**40,878**	**—**	**66**
PAD District 5								
Alaska	34,123	53,499	17,738	84,920	—	7,418	—	474
Arizona	—	—	304	1,237	—	—	333	—
California	16,483	31,181	110,579	151,451	142,937	297,853	61,498	170,059
Hawaii	22,334	2,170	2,875	9,103	13,814	23,356	433,360	410,745
Nevada	190	454	1,125	3,108	433	710	14,063	13,874
Oregon	3,819	10,644	27,001	69,203	418	528	—	—
Washington	954	4,531	91,332	198,645	5,749	11,324	520	565
Total	**77,904**	**102,479**	**250,954**	**517,667**	**163,350**	**341,188**	**510,225**	**595,717**
U.S. Total	**1,764,531**	**1,663,005**	**3,810,345**	**4,492,393**	**502,615**	**766,034**	**7,631,898**	**9,041,608**

...By End Use

N.B.: In 1985, EIA began publishing two sets of product tables, one for sales, the other for deliveries. Both are based on the same raw data. The sales tables reflect the questionnaire totals; the deliveries table are adjustments to correlate them with other industry data. EIA's original objective was to switch to the sales tables and drop the deliveries tables. However, because of statistical disparities, this switch-over has been delayed indefinitely. The data on these pages are the deliveries tables and are compatible with prior NPN Factbook summaries even though the latter were then labelled "sales".

	Railroad		Vessel Bunkering		Military		All Other		Total	
Destination	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986
PAD District 1										
New England States										
Connecticut	—	—	202	392	3,488	1,555	—	—	877,782	599,422
Maine	270	135	117	1,739	2,145	182	—	--	312,962	398,198
Massachusetts	—	—	9,098	12,392	4,484	11,083	—	86	1,628,432	2,013,131
New Hampshire	—	—	16	27	12,449	3,756	—	—	188,201	227,959
Rhode Island	—	—	242	164	8,676	—	—	422	80,511	105,614
Vermont	—	—	—	—	133	—	—	—	10,092	12,535
Central Atlantic States										
Delaware	—	—	28,315	14,875	1,498	2,646	—	—	160,336	92,186
District of Columbia	—	—	—	—	—	6,111	—	—	24,423	32,750
Maryland	--	—	31,580	26,644	42,371	16,828	—	—	332,613	271,516
New Jersey	—	—	286,705	375,710	7,441	34,107	886	16,529	866,845	1,550,243
New York	—	—	46,638	39,898	13,176	3,248	4,457	892	2,885,277	2,786,818
Pennsylvania	—	10	140,530	121,510	3,672	3,127	—	—	763,519	799,652
Lower Atlantic States										
Florida	—	—	199,984	191,014	51,075	33,956	102	1,227	1,540,047	2,040,206
Georgia	—	—	11,401	17,553	1,403	2,272	—	—	92,361	93,611
~~North Carolina~~	—	—	11,382	2,812	9,668	1,960	178	423	188,309	175,540
South Carolina	—	—	13,598	15,007	1,284	3,734	—	—	70,371	73,616
Virginia	20	—	59,559	73,579	15,578	20,357	0	—	398,572	348,988
West Virginia	—	—	—	—	—	—	—	—	16,054	31,502
Total	**290**	**145**	**839,368**	**893,318**	**178,542**	**144,921**	**5,623**	**19,580**	**10,436,706**	**11,653,488**
PAD District 2										
Illinois	—	—	4,461	3,473	—	408	—	17	296,464	309,0[illegible]
Indiana	—	—	4,923	1,907	—	382	—	543	158,837	218,4[illegible]
Iowa	—	—	—	—	438	—	—	—	5,272	25,787
Kansas	—	22	—	—	—	—	—	—	14,481	23,984
Kentucky	—	—	—	—	—	—	—	—	37,981	37,518
Michigan	—	—	1,319	77	1,144	2,429	42	316	128,079	[illegible]8,982
Minnesota	—	298	174	1,237	—	—	195	683	53,365	91,144
Missouri	—	—	—	—	—	2,114	—	20	39,913	36,912
Nebraska	4	7	—	—	—	—	10	225	14,182	10,124
North Dakota	—	84	—	—	—	—	1,150	1,286	15,989	19,888
Ohio	—	—	[illegible]	166	—	—	—	—	80,798	116,734
Oklahoma	—	—	—	—	—	—	—	—	14,621	19,569
South Dakota	—	—	—	—	—	—	—	—	2,373	2,979
Tennessee	—	—	21	—	—	—	—	1,027	14,150	29,479
Wisconsin	—	—	—	4,127	--	—	—	—	52,158	52,36[illegible]
Total	**4**	**411**	**12,233**	**10,987**	**1,582**	**5,333**	**1,397**	**[illegible]**	**[illegible]**	**[illegible]**
PAD District 3										
Alabama	—	—	58,842	44,430	579	—	—	—	458,240	388,192
Arkansas	—	—	—	—	—	—	—	—	112,973	270,362
Louisiana	—	—	800,830	785,142	—	3,116	17,428	[illegible]973	1,844,363	1,568,247
Mississippi	—	—	67,230	57,992	--	—	—	—	109,750	538,420
New Mexico	—	—	—	--	--	—	—	—	24,747	88,784
Texas	--	—	724,019	840,193	—	—	186,224	148,059	1,524,599	1,561,421
Total	**—**	**--**	**1,646,922**	**1,727,757**	**579**	**3,116**	**203,652**	**15[illegible],033**	**4,074,672**	**4,395,426**
PAD District 4										
Colorado	—	13	—	--	—	—	—	—	8,860	43,6[illegible]
Idaho	—	—	—	--	—	—	—	—	16,388	3,575
Montana	—	—	—	--	—	—	76	287	5,979	8,427
Utah	—	—	—	--	—	—	—	—	91,769	82,760
Wyoming	—	—	—	--	—	—	5,[illegible]	2,921	30,498	33,71[illegible]
Total	**—**	**13**	**—**	**—**	**—**	**—**	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**
PAD District 5										
Alaska	—	—	5,404	6,030	—	—	—	62,906	57,265	215,247
Arizona	—	—	—	—	—	—	—	—	637	1,237
California	—	—	2,186,577	1,938,071	4,934	18,444	—	38,409	2,523,458	2,645,467
Hawaii	—	—	48,618	82,723	1,163	—	6,484	30,811	528,648	558,908
Nevada	—	—	—	—	—	253	—	154	15,812	18,554
Oregon	—	—	148,752	159,963	2,630	—	—	58	182,620	240,396
Washington	—	—	371,393	468,498	1,615	8,851	39	102	471,602	692,517
Total	**—**	**—**	**2,760,744**	**2,655,285**	**10,341**	**27,548**	**6,524**	**132,441**	**3,780,042**	**4,372,326**
U.S. Total	**294**	**569**	**5,259,272**	**5,287,347**	**191,045**	**180,918**	**223,168**	**312,241**	**19,383,168**	**21,744,114**

Source: Energy Information Administration, Petroleum Marketing Monthly, July, 1988.

Distillate Deliveries by Annual Uses

(Add 000 bbl.)

Year	Residential	Commercial	Industrial	Farm	Oil Company	Electric Utilities	Diesel	Other	Total
1987	176,819	101,890	69,472	77,190	20,994	15,383	473,930	150,741	1,086,419
1986	173,686	102,217	63,907	80,477	17,857	14,628	467,280	143,688	1,063,740
1985	171,736	107,481	61,730	78,841	20,869	12,246	411,420	99,984	1,046,827
1984(a)	164,529	116,729	56,113	70,819	21,623	16,405	439,786	139,173	1,041,217
1983(a)	159,481	112,392	54,030	67,582	21,510	11,744	408,594	131,142	981,926
1982	180,760	75,669	71,340	68,453	29,482	12,134	375,124	164,253	974,864
1981	197,400	78,663	80,216	69,665	29,185	18,192	378,853	180,302	1,032,476
1980	227,261	92,136	86,089	73,615	24,205	31,812	377,136	175,355	1,086,709

(a) In 1984, (as it did in 1979), Energy Information Administration revised some of its sampling procedures and adjusted some of the categories to reflect market volumes. Thus the 1984 and 1983 data are estimates and may not be truly comparable to 1982 and the preceding years. Also, see special caveat at the top of the preceding pages.

Residual Deliveries by Annual Uses

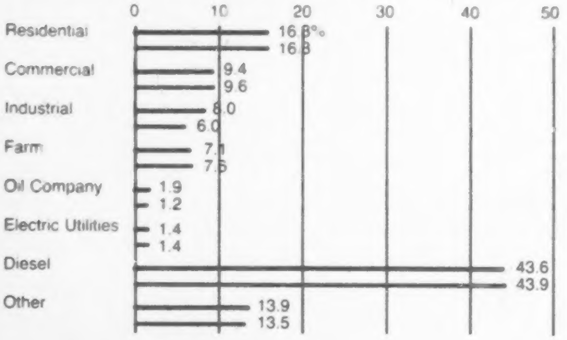
(Add 000 bbl.)

Year	Vessel Bunkering	Electric Utilities	Railroads	Oil Companies	Industrial	Commercial	Military	Other	Total
1987	125,221	181,712	7	11,967	90,723	42,013	4,549	5,316	461,504
1986	125,889	215,276	14	18,239	106,962	35,595	4,308	7,434	517,717
1985	130,323	147,381	147	18,477	95,509	31,592	4,593	10,962	438,840
1984(a)	135,400	186,318	43	27,680	94,375	33,777	5,291	18,307	501,199
1983(a)	136,290	204,238	47	28,604	93,624	35,979	5,411	14,412	518,604
1982	152,586	227,419	170	45,319	122,619	65,781	7,829	4,784	626,510
1981	188,632	325,486	178	51,870	117,024	67,035	7,008	4,795	762,030
1980	213,131	390,105	665	59,519	163,564	98,034	8,066	4,382	937,466

(a) See Footnote (a) in distillate summaries above.

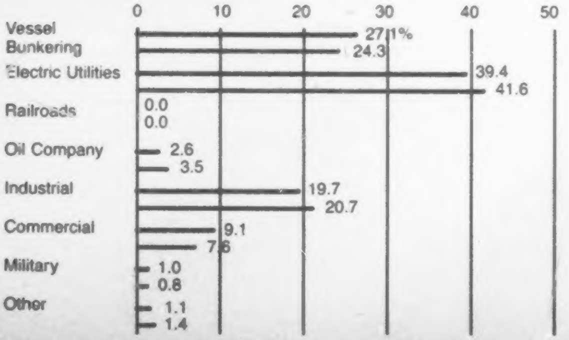
Distillate Deliveries by Use As Percent of Total

1987 = 1,086,419,000 bbl. 1986 = 1,063,740,000 bbl.

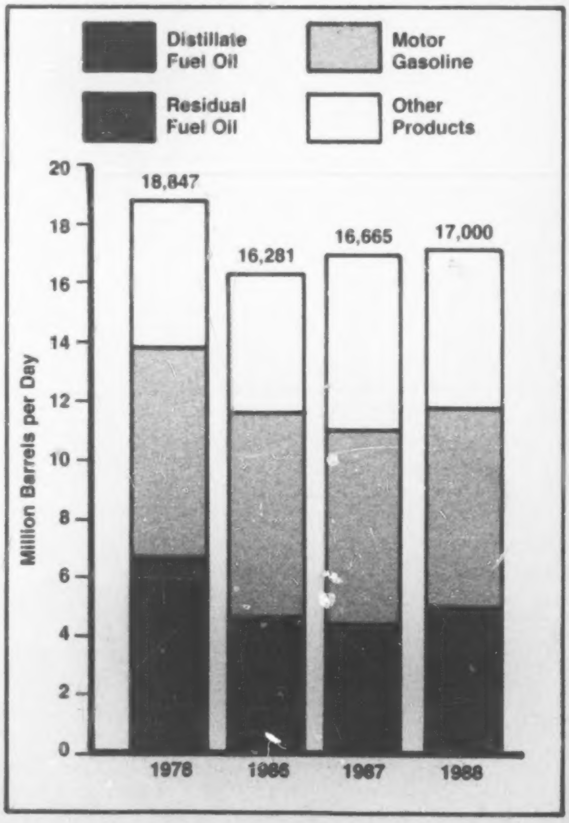


Residual Deliveries by Use As Percent of Total

1987 = 461,504,000 bbl. 1986 = 517,717,000 bbl.



Fuel Oil Demand vs. Other Products



Industry Profiles — 1988

Petroleum Products Sold (% of total volume)

	No. 2	No. 1	No. 4	Nos. 5&6	No. 2 for Diesel	Gasoline	Lpg/Lng	Other
New England	83.3	3.2	*	*	4.1	7.0	0.9	0.9
Mid-Atlantic	53.3	3.5	1.2	1.4	9.6	26.3	2.7	0.6
South	34.1	14.0	0.1	0.1	14.0	34.1	0.2	3.5
Midwest	37.7	5.8	*	*	26.3	27.4	2.7	1.9
West	36.4	6.0	0.6	*	23.0	30.1	1.6	2.0
All Sections	**49.0**	**6.5**	**0.4**	**0.3**	**15.4**	**25.0**	**1.6**	**1.8**

* - Less than .1%

Dealers Operating Bulkplants (%)

	With Bulk Plants	Bulk Plants Storing Other Prods
New England	56.7	64.7
Mid-Atlantic	69.8	90.0
South	80.8	85.7
Midwest	95.1	89.7
West	88.6	83.9
All Sections	**78.2**	**82.8**

Dealers Trading on the Oil Futures Market

New England	16.7
Mid-Atlantic	11.6
South	3.8
Midwest	9.8
West	*
All Sections	**8.4**

* - Less than .1%

Fuel Oil Dealers Who Sell, Install and/or Service Equipment (%)

New England	73.3
Mid-Atlantic	60.5
South	34.6
Midwest	31.7
West	34.3
All Sections	**46.9**

Average Size of Business

	Home Fuel Oil Accts	No. C/I Accts	Gals. of Distillate	Gals. of Resid	Gals. of Gas	No. of Empls
New England	1,411	145	1,698,704	212,500	942,000	8.5
Mid-Atlantic	2,279	222	2,289,166	575,348	1,827,884	15.7
South	1,243	268	1,432,600	I.D.	2,789,400	10.8
Midwest	750	167	1,737,813	481,000	2,293,636	11.5
West	1,924	218	2,432,500	I.D.	2,444,090	12.8
All Sections	**1,521**	**204**	**1,918,157.**	**253,770**	**2,059,402**	**11.9**

I.D. - Insufficient Data

Percent of Fuel Oil Dealers Who Sell, Install and/or Service Selected HVAC Equipment

RESIDENTIAL

	Oil Burners	Gas Burners	Domestic Hot Water	Boilers	Hydronic Systems
New England	92.0	24.0	88.0	88.0	48.0
Mid-Atlantic	92.3	30.8	80.8	84.6	73.1
South	100.0	66.7	83.3	50.0	50.0
Midwest	76.9	46.2	69.2	69.2	46.2
West	91.7	25.0	41.7	33.3	41.7
All Sections	**90.6**	**38.5**	**72.6**	**65.0**	**51.8**

COMMERCIAL

	Oil Burners	Gas Burners	Domestic Hot Water	Boilers	Hydronic Systems
New England	72.0	16.0	40.0	52.0	28.0
Mid-Atlantic	69.2	26.9	50.0	57.7	57.7
South	83.3	50.0	50.0	33.3	16.7
Midwest	46.2	30.8	38.5	30.8	7.7
West	41.7	8.3	41.7	33.3	33.3
All Sections	**62.5**	**26.4**	**44.0**	**41.4**	**28.7**

Source: All data on the four pages dealing with Fuel Oil Industry Profiles, Fuel Oil News, December 1988.

Computer Applications (% of marketers using EDP for listed operations)

	New England	Mid-Atlantic	South	Mid-West	West	All Sections
Accts Receivable/Billing	83.3	90.6	100.0	100.0	91.7	91.3
General Ledger	72.2	62.5	90.9	62.6	79.2	73.5
Accts Payable	38.9	59.4	81.8	69.6	75.0	64.9
Inventory Reconciliation	38.9	46.9	81.8	73.9	62.5	60.8
Excise Tax Reporting	27.8	65.6	63.6	73.9	45.8	55.3
Payroll	33.3	50.0	81.8	52.2	54.2	54.3
Delivery Scheduling	83.3	50.0	54.5	26.1	16.5	46.1
Word Processing	33.3	37.5	72.7	39.1	37.5	44.0
Fixed Assets Mgt.	16.7	21.9	63.6	30.4	33.3	33.2
Traking Supplier Costs	5.6	15.6	81.8	21.7	20.8	29.1
Pricing Analysis	*	15.6	45.5	13.0	12.5	17.3
Communication w/ Stations	*	6.3	*	17.4	29.2	10.6
Oil Price Info Services	*	12.5	*	8.7	12.5	6.7

* - Less than .1%

Trucks per Marketer

	----Avg. No.----		----Gallons----		
	Delivery Trucks	Trailers	Avg Size Largest	Avg Size Smallest	Opt Size Preferred
New England	3.4	0.4	2886	2150	2819
Mid-Atlantic	6.4	1.2	2931	2188	2829
South	4.7	1.0	2463	1838	2353
Midwest	3.9	0.7	2424	1785	2287
West	4.3	1.1	2756	1658	2567
All Sections	**4.5**	**0.9**	**2692**	**1924**	**2571**

Average Drop in Gallons

	275-gal. Tanks	550-gal. Tanks
New England	171.7	368.9
Mid-Atlantic	180.7	357.6
South	182.4	354.0
Midwest	202.4	385.7
West	179.2	356.9
All Sections	**183.3**	**364.6**

Engines by Type (% of readers)

	----Use----			----Prefer----	
	Diesel	Gasoline	Both	Diesel	Gasoline
New England	60.0	20.0	20.0	80.0	6.7
Mid-Atlantic	31.0	19.0	50.0	73.8	16.7
South	8.3	33.3	58.3	41.7	41.7
Midwest	22.5	35.0	42.5	60.0	25.0
West	8.8	32.4	58.8	58.8	23.5
All Sections	26.1	27.9	45.9	62.9	22.7

Truck Tanks by Type (% of readers)

	----Use----			----Prefer----	
	Steel	Aluminum	Both	Steel	Aluminum
New England	26.7	16.7	46.7	6.7	66.7
Mid-Atlantic	25.0	27.5	47.5	17.5	72.5
South	50.0	8.3	37.5	37.5	45.8
Midwest	75.0	10.0	10.0	32.5	32.5
West	47.1	5.9	44.1	17.6	50.0
All Sections	44.8	13.7	37.2	22.4	53.5

Average Age of Trucks

	Year of Oldest	Year of Newest
New England	1975.9	1983.4
Mid-Atlantic	1973.4	1983.7
South	1975.0	1983.6
Midwest	1976.4	1984.2
West	1970.6	1980.7
All Sections	**1974.3**	**1983.1**

Buying This Year (%)

	New Truck	New Tank
New England	23.3	23.3
Mid-Atlantic	32.6	18.6
South	28.0	20.0
Midwest	41.5	22.0
West	34.3	17.1
All Sections	**31.9**	**20.2**

Services Offered at Retail Outlets (% reporting such offerings)

	Check Cashing	Auto Service	Fast Food	TBA	Lottery Tickets	Beer/ Wine	Bakery Goods	Canned Goods	Cigs & Soda
New England	25.0	33.3	66.7	33.3	66.7	33.3	66.7	33.3	100.0
Mid-Atlantic	50.0	40.0	46.7	33.3	26.7	33.3	53.3	75.0	100.0
South	45.5	27.3	81.8	45.5	9.1	63.6	63.6	72.7	90.9
Midwest	47.4	36.8	47.4	42.1	36.8	36.8	63.2	52.6	89.5
West	52.9	70.6	58.8	52.9	35.3	41.2	29.4	41.2	76.5
All Sections	44.2	41.6	60.3	41.4	34.9	41.6	55.2	55.0	91.4

The Gas Threat

	% Losing Customers	Avg No. Lost
New England	50.0	7.5
Mid-Atlantic	92.3	16.0
South	57.1	12.3
Midwest	100.0	16.3
West	76.9	12.7
All Sections	**75.3**	**13.0**

The Service Department

	% Have Service Depart.	Avg. No. of Calls /Year	Value of Parts Inventory	% Service Depart. Profitable	No. of Techs.	No. of Service Vans
New England	76.7	1,281	$17,444	39.	2.8	2.9
Mid-Atlantic	60.5	2,880	25,103	61.5	5.4	5.5
South	30.8	1,769	21,667	50.0	4.0	3.8
Midwest	29.3	556	14,655	66.7	2.4	2.4
West	34.3	3.085	44,477	58.3	5.7	6.1
All Sections	**46.3**	**1,914**	**$24,729**	**55.1**	**4.1**	**4.1**

Dealers Using Additives (%)

	Use Additives	Blend at Bulk Plant
New England	40.0	25.0
Mid-Atlantic	37.2	18.9
South	26.9	57.1
Midwest	61.0	28.0
West	22.9	50.0
All Sections	**37.6**	**35.8**

	Blend on Truck	Blend in Cust. Tanks
New Endland	16.7	66.7
Mid-Atlantic	25.0	56.3
South	28.6	57.1
Midwest	40.0	52.0
West	50.0	37.5
All Sections	**32.1**	**53.9**

Annual Heating Oil Sales by Types of Customers (% of total customers served)

	Private Homes	Apts.	Educ.	Hospitals	Commercial	Indus.
New England	83.6	5.1	0.4	0.2	7.4	1.9
Mid-Atlantic	81.9	2.8	0.9	0.9	7.3	3.4
South	58.6	3.1	1.1	2.1	25.9	4.2
Midwest	76.8	2.7	3.6	1.5	7.3	5.1
West	80.0	1.4	0.6	*	6.5	3.3
All Sections	**76.2**	**3.0**	**1.3**	**0.9**	**10.9**	**3.6**

* - Less than .1%

Fuel Oil Dealers Who Sell, Install and/or Service Selected HVAC Equipment (%)

RESIDENTIAL

	Furnaces	Warm Air Systems
New England	96.0	76.0
Mid-Atlantic	88.5	69.2
South	100.0	66.7
Midwest	84.6	76.9
West	91.7	66.7
All Sections	92.2	71.1

	Central Air Conditioning	Heat Pump
New England	28.0	8.0
Mid-Atlantic	69.2	11.5
South	33.3	50.0
Midwest	53.8	15.4
West	16.7	16.7
All Sections	40.2	20.3

COMMERCIAL

	Furnaces	Warm Air Systems
New England	52.0	28.0
Mid-Atlantic	57.7	38.5
South	66.7	33.3
Midwest	53.8	23.1
West	58.3	25.0
All Sections	57.7	29.6

	Central Air Conditioning	Heat Pump
New England	16.0	*
Mid-Atlantic	26.9	11.5
South	33.3	50.0
Midwest	23.2	7.7
West	33.3	16.7
All Sections	26.5	17.1

* - Less than .1%

Average Number of Units Installed in Past 12 Months

	—RESIDENTIAL—			—COMMERCIAL—		
	Burners	Boilers	Furnace	Burners	Boilers	Furnace
New England	29.7	29.5	11.4	4.1	3.9	2.0
Mid-Atlantic	51.9	60.9	27.8	6.0	4.8	3.2
South	I.D.	I.D.	I.D.	I.D.	I.D.	I.D.
Midwest	11.8	2.5	14.8	0.5	0.1	1.1
West	55.0	2.6	60.5	*	*	*
All Sections	37.1	23.9	28.6	2.7	2.2	1.6

* - Less than .1%
I.D. - Insufficient Data

Average Storage Capacity in Gals.

	No. 2 Oil	Diesel	Gasoline	Lpg	Kerosene
New England	225,812	25,182	58,364	I.D.	4,727
Mid-Atlantic	134,345	23,909	66,857	30,000	29,000
South	50,950	37,857	73,429	27,000	37,500
Midwest	96,595	33,191	48,500	38,500	35,067
West	80,214	46,000	104,455	I.D.	16,286
All Sections	113,583	33,228	70,321	31,833	24,516

I.D. - Insufficient Data

Retail Gasoline Outlets and Volume

	Avg. No.	Less Than 50,000*	50,000 - 100,000.*	100,000 +*
New England	1.3	25.0	50.0	25.0
Mid-Atlantic	3.5	23.8	28.6	47.6
South	14.4	54.5	36.4	9.1
Midwest	2.1	58.3	20.9	20.8
West	2.4	52.6	31.6	15.8
All Sections	4.7	42.8	28.5	23.7

* Percent reporting such volume in gallons per month.

Top 10 Importers of Crude and Product—1988

Company	Headquarters	Volume (000-b/d)	% of U.S. Total
CRUDE OIL AND PRODUCT			
Chevron	San Francisco	736	10.4%
Texaco	White Plains, N.Y.	485	6.8
Exxon	New York	433	6.1
Amoco	Chicago	321	4.5
Coastal	Houston	307	4.3
Shell	Houston	295	4.2
Amerada Hess	New York	258	3.6
Sun	Philadelphia	238	3.4
Koch	Wichita, Kan.	235	3.3
Citgo	Tulsa	231	3.3
Total Top 10		3,539	50.5
Total U.S.		7,084	
CRUDE OIL ONLY			
Chevron	San Francisco	673	13.3
Texaco	White Plains, N.Y.	443	8.8
Amoco	Chicago	308	6.1
Exxon	New York	301	6.0
Shell	Houston	273	5.4
Koch	Wichita, Kan.	211	4.2
U.S. Steel	Pittsburgh	203	4.0
Sun	Philadelphia	196	3.9
Citgo	Tulsa	194	3.8
Ashland	Ashland, Ky.	193	3.8
Total Top 10		2,995	59.4
Total U.S.		5,045	
FINISHED MOTOR GASOLINE			
Getty	Jericho, N.Y.	35	9.1
Northville	Melville, N.Y.	33	8.6
C. Itoh (Amer.)	Los Angeles	30	7.8
Amerada Hess	New York	28	7.3
S&W Berisford	Fort Lee, N.J.	28	7.3
Coastal	Houston	20	5.2
Citgo	Tulsa	19	4.9
Bear Sterns	New York	17	4.4
Mobil	New York	16	4.2
Texaco	White Plains, N.Y.	15	3.9
Total Top 10		241	62.8
Total U.S.		384	

Company	Headquarters	Volume (000-b/d)	% of U.S. Total
DISTILLATES			
Amerada Hess	New York	46	16.3
Global Petro.	Waltham, Mass.	28	9.9
Northville	Melville, N.Y.	18	6.4
Scanoil	New York	14	5.0
Cumberland Farms	Canton, Mass.	13	4.6
Wyatt	New Haven, Conn.	13	4.6
Vitol S.A.	Stamford, Conn.	12	4.3
Astroline	Reading, Mass.	12	4.3
G.E. Warren	Framingham, Mass.	12	4.3
Cargill	Minneapolis	11	3.9
Total Top 10		179	63.5
Total U.S.		282	
RESIDUAL			
Amerada Hess	New York	97	16.4
Coastal	Houston	91	15.3
Clarendon Mktg.	Stamford, Conn.	39	6.6
Charter	Jacksonville, Fla.	34	5.7
Solomon	Greenwich, Conn.	31	5.2
Petro-Diamond	Irvine, Calif.	31	5.2
Chevron	San Francisco	29	4.9
Sun	Philadelphia	23	3.9
Clark Trading	Clayton, Mo.	22	3.7
Vitol S.A.	Stamford, Conn.	22	3.7
Total Top 10		409	70.7
Total U.S.		593	
JET FUELS			
Amerada Hess	New York	13	39.4
Cumberland Farms	Canton, Mass.	5	15.2
Mobil	New York	3	9.1
Western	Eden Prairie, Minn.	3	9.1
Texport	Houston	2	6.1
Chevron	San Francisco	1	3.0
Pacific Fuel	Los Angeles	1	3.0
Coastal	Houston	1	3.0
Amer. Airlines	Dallas/Ft. Worth	1	3.0
Solomon	Greenwich, Conn.	1	3.0
Total Top 10		31	93.9
Total U.S.		33	

Source: Energy Information Administration, Petroleum Supply Monthly and Annual, 1988

U.S. Dependency on Crude and Product Imports

(Add 000 b/d)

	Net imports						Net imports as % of U.S. Petroleum products supplied		
	Total from All countries	From Arab OPEC Members	% from Arab OPEC	From all OPEC Members	% from All OPEC	U.S. Petroleum Products Supplied	Total from All countries	From Arab OPEC Members	From all OPEC Members
1988 Average	6,353	1,826	28.7%	3,421	53.8%	17,170	37.0%	10.6%	19.9%
1st Qtr.	6,006	1,668	27.8	3,155	52.5	17,443	34.4	9.6	18.1
2nd Qtr.	6,240	1,640	26.3	3,355	53.8	16,533	37.7	9.9	20.3
3rd Qtr.	6,353	1,975	31.1	3,545	55.8	16,917	37.6	11.7	21.0
4th Qtr.	6,807	2,017	29.6	3,625	53.3	17,782	38.3	11.3	20.4
1987 Average	5,914	1,272	21.5	3,053	51.6	16,665	35.5	7.6	18.3
1st Qtr.	5,252	1,077	20.1	2,608	49.7	16,575	31.7	6.5	15.7
2nd Qtr.	5,514	968	17.6	2,734	49.6	16,455	33.5	5.9	16.6
3rd Qtr.	6,697	1,501	22.4	3,607	53.9	16,710	40.1	9.0	21.6
4th Qtr.	6,175	1,534	24.8	3,521	57.0	16,916	36.5	9.1	19.2
1986 Average	5,439	1,160	21.3	2,828	52.0	16,281	33.4	7.1	17.4
1985 Average	4,286	470	11.0	1,821	42.5	15,726	27.3	3.0	11.6
1984 Average	4,715	817	17.3	2,037	43.2	15,726	30.0	5.2	13.0
1983 Average	4,312	630	14.6	1,843	42.7	15,231	28.3	4.1	12.1
1982 Average	4,298	852	19.8	2,136	49.7	15,296	28.1	5.6	14.0
1981 Average	5,401	1,844	34.1	3,315	61.4	16,058	33.6	11.5	20.6
1980 Average	6,385	2,549	39.9	4,293	67.2	17,056	37.3	14.9	25.2
1979 Average	7,985	3,054	38.2	5,633	70.5	18,513	43.1	16.5	30.4
1978 Average	8,002	2,962	37.0	5,747	71.8	18,847	42.5	15.7	30.5
1977 Average	8,565	3,184	37.2	6,190	72.3	18,431	46.5	17.3	33.6
1976 Average	7,090	2,423	34.2	5,063	71.4	17,461	40.6	13.9	29.0
1975 Average	5,846	1,382	23.6	3,599	61.2	16,322	35.8	8.5	22.0
1974 Average	5,892	752	12.8	3,277	55.6	16,653	35.4	4.5	19.7
1973 Average	6,025	914	15.2	2,991	49.6	17,038	34.8	5.3	17.3

Source: Energy Information Administration, Monthly Energy Review, December 1988, published April 1989.

Role of Imports in Domestic Demand

(Add 000 bbl.)

	Total Imports			Domestic Demand for Refined Products			
	Total(a)	b/d Avg.	% Change	Total	b/d Avg.	% Change	Imports as % of U.S. Demand
1988(b)	2,625,445	7,193	7.7%	6,261,210	17,154	2.9%	41.9%
1987	2,437,470	6,678	7.3	6,082,725	16,665	2.3	40.1
1986	2,271,760	6,224	22.8	5,942,565	16,281	3.5	38.2
1985	1,849,455	5,067	(6.8)	5,739,990	15,726	—	32.2
1984	1,984,505	5,437	7.6	5,739,990	15,726	3.2	34.6
1983	1,843,615	5,051	(1.2)	5,559,315	15,231	(.04)	33.2
1982	1,866,245	5,113	(14.7)	5,583,040	15,296	(4.7)	33.4
1981	2,188,540	5,996	(13.2)	5,861,170	16,058	(5.9)	37.3
1980	2,521,785	6,909	(18.3)	6,225,440	17,056	(7.9)	40.5
1979	3,086,440	8,456	1.1	6,757,245	18,513	(1.8)	45.7
1977 (peak year)	3,214,555	8,807	20.1	6,727,315	18,431	5.3	47.8
1975	2,210,335	6,056	(0.9)	5,957,515	16,322	(2.0)	37.1
1973	2,283,493	6,256	32.0	6,317,303	17,308	5.7	36.1
1971	1,432,880	3,926	14.8	5,552,560	15,212	3.5	25.8
1970	1,248,062	3,419	8.0	5,364,473	14,697	4.0	23.3
1965	900,772	2,468	9.3	4,202,039	11,512	4.4	21.4
1960	664,111	1,815	2.0	3,585,820	9,797	2.8	18.5
1955	455,564	1,248	18.6	3,089,348	8,464	9.0	14.7
1950	310,261	850	31.8	2,392,974	6,556	13.0	13.0

(a) Crude oil and products but not crude for Strategic Petroleum Reserve; (b) Preliminary. Special note: Data for 1977 through 1985 are restated to reflect EIA information rather than other sources used in 1984.

Petroleum Products Imported

(Thousands of b/d)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1988												
Total Motor Gasoline	357	419	361	397	502	493	534	530	452	411	514	407
Leaded	7	14	10	9	37	18	8	7	4	2	13	11
Unleaded	317	351	308	340	378	406	453	458	399	361	438	330
Blending Components	33	54	43	48	87	69	73	65	49	48	63	66
Jet Fuel	82	67	97	86	104	74	81	103	61	138	79	161
Distillate Fuel Oil	355	330	243	208	228	209	205	270	292	324	308	399
Residual Fuel Oil	737	792	610	465	423	349	436	515	566	522	765	997
Other Petroleum Products(a)	750	694	628	768	726	704	731	717	666	728	862	676
1987												
Total Motor Gasoline	474	372	419	404	386	412	515	494	467	454	548	385
Leaded	37	16	35	12	22	37	69	22	51	26	75	27
Unleaded	356	293	329	362	332	348	383	373	370	330	409	292
Blending Components	81	63	55	30	32	27	63	98	46	97	64	65
Jet Fuel	43	67	83	65	67	66	73	54	83	83	55	68
Distillate Fuel Oil	222	253	297	192	203	265	381	222	222	237	187	378
Residual Fuel Oil	701	668	559	476	505	481	721	512	526	414	568	650
Other Petroleum Products(a)	529	759	657	643	572	738	604	661	769	739	697	714
1986												
Total Motor Gasoline	375	402	254	412	569	482	397	400	376	402	331	379
Leaded	57	77	27	71	147	81	37	30	46	49	49	37
Unleaded	276	257	197	220	324	311	300	273	257	273	231	282
Blending Components	43	68	30	121	99	90	59	97	73	80	52	59
Jet Fuel	27	35	29	43	54	85	121	85	60	38	59	48
Distillate Fuel Oil	325	169	217	147	149	169	313	370	262	243	254	339
Residual Fuel Oil	622	604	626	545	675	712	673	793	641	635	574	913
Other Petroleum Products(a)	751	498	597	607	703	765	711	661	720	691	759	610

(a) Includes kerosine, unfinished oils, motor gasoline blending components, liquefied petroleum gas and other oils.
Source: Energy Information Administration, Weekly Status Reports.

Crude and Product Imports by PAD (a)...

(Add 000 b/d)

PAD 1*

Total crude imports: 1,164,000-b/d.
Total product imports: 1,506,000-b/d.
Major Sources: Venezuela, Virgin Islands, Nigeria, United Kingdom.
Leading Importers: Amerada Hess, Texaco, Sun, Chevron.

	1988	1987	%chng. '88 vs.'87	1986	1985	1984
Finished gasoline	351	324	(8)	251	296	254
Blending components	50	40	25	43	48	46
Unfinished oils	122	106	15	82	64	84
Liquefied Petro. gases	37	38	(3)	36	24	119
Distillates	270	221	22	216	177	251
Residual	556	516	8	593	449	568
Other products	120	90	33	92	98	122
Total products	1,506	1,335	13	1,312	1,159	1,345
Crude oil	1,164	1,109	5	1,056	977	944
Total crude oil and products	2,670	2,444	9	2,368	2,137	2,289

*PAD 1 includes Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, North and South Carolina, Georgia and Florida.

PAD 2*

Total crude imports: 923,318-b/d.
Total product imports: 128,000-b/d.
Major Sources: Canada, Nigeria, Saudi Arabia, Mexico.
Major Importers: Koch, Ashland, Shell, Apex.

	1988	1987	%chng. '88 vs.'87	1986	1985	1984
Finished gasoline	4	4	-	5	12	4
Blending components	1	(s)	-	1	(s)	(s)
Unfinished oils	3	(s)	-	0	8	10
Liquefied Petro. gases	89	76	17	982	119	134
Distillates	6	8	(25)	8	7	8
Residual	4	6	(33)	4	2	6
Other products	21	8	163	7	8	15
Total products	128	102	25	107	157	177
Crude oil	923	860	7	781	590	499
Total crude and products	1,051	962	9	888	746	676

*PAD 2 includes North and South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, Ohio, Kentucky and Tennessee:(s) means less than 500-b/d.

PAD 3*

Total crude imports: 2,733,526-b/d.
Total product imports: 416,000-b/d.
Major Sources: Saudi Arabia, Mexico, Venezuela, Nigeria.
Major Importers: Chevron, Texaco, USX (Marathon), Arco.

	1988	1987	%chng. '88 vs.'87	1986	1985	1984
Finished gasoline	9	15	(4)	7	20	15
Blending components	7	7	-	9	8	13
Unfinished oils	224	169	33	152	243	153
Liquefied Petro. gases	61	53	15	96	18	13
Distillates	2	6	(67)	1	2	3
Residual	22	25	(12)	33	46	84
Other products	91	96	(5)	94	74	90
Total products	416	372	12	393	409	364
Crude oil	2,734	2,417	13	2,037	1,419	1,747
Total crude and products	3,149	2,789	13	2,430	1,827	2,101

*PAD 3 includes Alabama, Arkansas, Louisiana, Texas and New Mexico.

(a) [illegible]

(Add 000 b/d)

	1988	1987	%chng '88 vs.'87	1986	1985	1984
PAD 4*						
Total crude imports: 63,764-b/d.						
Total product imports: 18,597-b/d.						
Major Sources: Canada.						
Major Importers: Du Pont (Conoco), Cenex, Exxon, Flying J.						
Finished gasoline	2	2	-	2	2	2
Blending components	0	0	-	(s)	0	0
Unfinished oils	0	0	-	0	0	0
Liquefied Petro. gases	12	12	-	12	15	15
Distillates	3	2	50	2	4	4
Residual	(s)	(s)	-	(s)	(s)	(s)
Other products	1	2	(50)	5	4	4
Total products	18	18	-	21	25	24
Total crude	63	64	(2)	54	39	33
Total crude and products	81	82	(1)	75	64	57

*PAD 4 includes Montana, Idaho, Wyoming, Utah and Colorado: (s) means less than 500-b/d.

	1988	1987	%chng '88 vs.'87	1986	1985	1984
PAD 5*						
Total crude imports: 174,880-b/d.						
Total product imports: 68,000-b/d.						
Major Sources: Indonesia, Canada, People's Republic of China.						
Major Importers: Chevron, Shell, Pacific, Unocal.						
Finished gasoline	21	21	-	32	48	21
Blending components	1	14	(93)	15	12	23
Unfinished oils	2	4	(50)	5	2	13
Liquefied Petro. gases	10	11	(9)	13	10	14
Distillates	3	3	-	8	10	6
Residual	12	7	71	20	13	13
Other products	19	14	36	23	19	20
Total products	68	74	(8)	117	116	111
Total crude	175	189	(7)	182	177	203
Total crude and products	243	264	(8)	299	293	313

*PAD 5 includes Arizona, Nevada, California, Oregon, Washington, Alaska and Hawaii.

	1988	1987	%chng '88 vs.'87	1986	1985	1984
ALL PADS - U.S. Totals.						
Total crude imports: 5,059,137-b/d.						
Total product imports: 2,132,449-b/d						
Major Sources: see related PAD tables in this section.						
Major Importer: see related PAD tables in this section.						
Finished gasoline	386	366	5	296	381	299
Blending components	58	61	(5)	68	67	83
Unfinished oils	351	280	25	239	318	231
Liquefied Petro. gases	210	190	11	241	187	195
Distillates	283	240	18	235	200	272
Residual	595	553	8	650	510	681
Other products	251	210	20	221	204	251
Total products	2,134	1,900	12	1,950	1,866	2,011
Total crude	5,059	4,639	9	4,111	3,201	3,426
Total crude and products	7,193	6,539	10	6,061	5,067	5,437

(a) The summaries at the top of each PAD are total figures for 1988, i.e. imports minus exports; the rest of the figures are total imports.
Source: Energy Information Administration, Petroleum Supply Monthly, Table 17, December 1988, published March 1989.

World Oil Production by Area

(Add 000 bbl.)

Year	United States	Canada	Latin America	Western Europe	Middle East	Africa	Asia-Pacific	Total Free World	Communist Nations	Total World
1988	2,968,910	—	—	—	—	—	—	—	—	—
1987	3,047,378	569,400	2,200,220	1,377,510	4,603,015	1,734,845	1,141,355	14,674,723	5,469,160	20,142,883
1986	3,168,252	537,280	2,190,000	1,395,030	4,639,150	1,819,890	1,176,760	14,926,362	5,402,730	20,329,092
1985	3,274,553	531,805	2,284,900	1,369,480	3,761,235	1,722,075	1,142,450	14,136,588	5,352,360	19,488,948
1984	3,249,696	516,426	2,315,682	1,331,874	4,128,114	1,713,978	1,164,978	14,420,748	5,332,620	19,753,368
1983	3,170,999	494,940	2,205,505	1,236,630	4,215,750	1,609,650	1,024,555	13,956,019	5,241,400	19,197,419
1982	3,156,715	452,965	2,255,355	1,085,145	4,581,480	1,622,790	961,410	14,116,160	5,278,995	19,395,155
1981	3,128,624	469,025	2,179,415	955,570	5,749,480	1,672,065	1,027,110	15,181,445	5,192,125	20,376,699
1980	3,146,365	521,164	2,036,058	893,406	6,735,498	2,226,378	1,000,278	16,559,304	5,206,350	21,760,680
1979	3,121,310	546,040	1,919,535	828,550	7,868,670	2,423,600	1,051,200	17,752,140	5,118,030	22,876,935
1978	3,175,927	483,260	1,736,427	643,149	7,884,927	2,233,791	1,037,520	17,195,001	4,963,250	22,158,251

Source: American Petroleum Institute Data Book, January 1989.

World Crude Oil Reserves by Area

(Add 000 bbl.)

Year (a)	United States	Canada	Latin America	Middle East	Africa	Asia-Pacific	Western Europe	Total Free World	Communist Nations	Total World
1988	28,416,000	6,825,000	114,332,000	564,680,300	55,249,700	19,353,700	22,447,800	810,144,500	79,200,000	889,344,500
1987	26,889,000	6,850,000	88,755,300	401,876,700	55,194,100	19,023,500	21,938,100	619,198,600	79,250,000	699,778,700
1986	28,416,000	6,500,000	84,242,400	398,075,710	56,734,050	18,885,800	26,412,600	619,196,500	81,370,000	700,566,560
1985	28,446,000	7,075,000	83,315,700	398,380,750	55,540,550	18,529,900	24,425,500	615,713,400	84,100,000	699,813,400
1984	27,735,000	6,730,000	81,675,900	370,100,800	56,970,000	18,989,400	23,019,940	585,137,600	84,600,000	669,737,600
1983	29,785,000	7,020,000	74,482,066	369,285,893	57,821,690	19,756,077	22,923,680	583,147,406	85,115,000	668,262,406
1982	29,426,000	7,300,000	84,982,270	362,839,950	56,171,630	19,150,800	24,634,500	584,505,150	85,845,000	670,350,150
1981	29,805,000	6,400,000	69,489,837	362,071,000	55,148,375	19,630,500	23,085,000	565,629,712	86,300,000	651,929,712
1980	27,051,289	6,800,000	56,472,500	361,947,300	57,072,100	19,355,200	23,476,400	522,174,789	90,000,000	642,174,789
1979	27,803,760	6,860,000	41,246,500	369,996,000	57,892,125	20,007,200	23,966,000	547,771,585	94,000,000	641,771,585

(a) As of Jan. 1 of each year.
Source: American Petroluem Institute Data Book, January 1989.

World Crude Oil Refining Capacity by Area

(Barrels per day)

Year	United States	Other Western Hemisphere	Total Western Hemisphere	Middle East	Africa	Asia-Pacific	Europe	Total Free World	Sino Soviet Bloc	Total World
1988	15,915,418	8,856,748	24,772,166	4,146,222	2,630,250	10,274,302	14,127,595	55,950,479	17,610,000	73,560,479
1987	15,565,513	8,676,740	24,242,253	3,862,622	2,523,563	10,400,180	13,929,325	54,957,943	17,610,000	72,567,943
1986	15,458,946	8,613,690	24,072,639	4,274,255	2,520,403	10,111,652	14,071,507	55,050,453	17,500,000	72,550,453
1985	15,658,769	9,457,706	24,857,706	4,052,673	2,447,156	10,393,562	15,654,622	57,664,488	17,500,000	75,164,488
1984	16,137,141	9,590,962	25,520,962	3,901,082	1,879,990	10,473,079	16,231,932	58,114,186	17,200,000	75,314,186
1983	16,859,337	9,873,816	26,773,153	3,685,333	1,822,105	10,902,204	17,124,989	60,327,784	16,873,000	77,200,784
1982	17,889,734	10,720,056	28,609,789	3,312,152	1,761,870	10,966,825	19,444,519	64,095,155	16,533,000	80,628,155
1981	18,620,520	10,716,881	29,337,401	3,729,646	1,697,658	10,554,691	20,205,799	65,524,895	16,036,500	81,561,395
1980	17,968,121	10,683,671	28,671,792	3,518,080	1,866,108	10,386,375	20,243,747	64,486,102	15,346,000	79,832,102
1978	17,440,885	10,273,030	27,713,915	3,546,029	1,807,606	10,284,966	20,328,614	63,541,132	14,748,000	78,289,132

Source: American Petroleum Institute Data Book, January 1989.

World Natural Gas Production by Area

(Add 000,000 cubic feet)

Year	United States	Canada	Latin America	Middle East	Africa	Asia-Pacific	Western Europe	Total Free World	Communist Nations	Total World
1987	17,150,000	3,472,700	3,354,580	2,624,100	2,025,700	3,797,600	7,043,900	39,468,500	28,742,500	68,211,000
1986	16,791,000	3,168,300	3,413,600	1,822,800	1,661,800	3,320,900	6,519,600	36,698,000	27,088,200	65,786,200
1985	17,197,999	3,196,300	3,445,300	1,668,300	1,720,700	2,924,500	6,827,200	36,990,299	25,453,400	62,443,699
1984	18,299,638	2,651,800	3,451,800	1,533,400	1,629,100	2,530,700	6,795,400	36,821,838	23,272,100	60,093,938
1983	16,822,144	2,414,100	3,340,500	1,633,000	1,143,800	2,187,700	6,383,400	33,924,644	21,383,000	55,307,644
1982	18,519,675	2,546,100	3,091,500	1,799,700	1,168,900	2,176,600	6,142,100	35,424,575	20,258,000	55,682,575
1981	19,955,823	2,623,000	3,227,000	1,542,000	1,947,000	2,765,000	6,906,000	39,187,701	19,210,000	58,397,701
1980	20,179,724	2,668,300	3,297,500	1,221,300	884,700	2,558,400	6,668,700	37,677,687	21,069,900	58,747,587
1979	20,471,260	3,646,500	2,610,000	1,624,700	1,027,900	1,827,900	6,866,800	38,075,080	19,591,400	57,666,480
1978	19,974,033	3,128,056	2,012,912	1,579,478	1,117,416	1,469,154	6,649,855	35,930,904	15,818,398	51,749,302

Source: American Petroleum Institute Data Book, January 1989.

Crude Oil Reserves in 20 Leading Nations

(Annually as of Jan. 1)

Nation	Reserves (Add 000 bbl.) 1988	Reserves (Add 000 bbl.) 1987	% of Free World Reserves 1988	% of Free World Reserves 1987	% of Total World Reserves 1988	% of Total World Reserves 1987
Saudi Arabia	166,980,000	166,573,900	20.6%	26.9%	18.8%	23.9%
Iraq	100,000,000	47,100,000	12.3	7.6	11.2	6.7
Iran	92,850,000	48,800,000	11.4	7.9	10.4	7.0
Abu Dhabi	92,205,000	31,000,000	11.4	5.0	10.4	4.4
Kuwait	91,920,000	91,916,000	11.3	14.9	10.3	13.1
U.S.S.R.	59,000,000	59,000,000	7.3	9.5	6.6	8.4
Venezuela	56,300,000	25,000,000	6.9	4.0	6.3	3.6
Mexico	48,610,000	54,653,000	6.0	8.8	5.5	7.8
United States	27,256,000	26,889,000	3.4	4.3	3.1	3.8
Libya	21,000,000	21,300,000	2.6	3.4	2.4	3.0
China	18,400,000	18,400,000	2.3	3.0	2.1	2.6
Nigeria	15,980,000	16,000,000	2.0	2.6	1.8	2.3
Norway	14,800,000	10,500,000	1.8	1.7	1.7	1.6
Algeria	8,500,000	8,800,000	1.4	1.4	1.0	1.3
Indonesia	8,400,000	8,300,000	1.4	1.3	0.9	1.2
Canada	6,825,000	6,850,000	0.8	1.1	0.8	1.0
United Kingdom	5,200,000	9,000,000	0.6	1.5	0.6	1.3
Egypt	4,300,000	3,600,000	0.5	0.6	0.5	0.5
India	4,250,000	4,202,000	0.5	0.7	0.5	0.6
Oman	4,012,000	4,032,000	0.5	0.7	0.5	0.6
Total Free World	**810,144,510**	**620,258,600**				
Total World	**889,340,000**	**699,773,600**				

Source: American Petroleum Institute, Basic Data Book, Vol. 3, January 1989; percentage relationships by NPN.

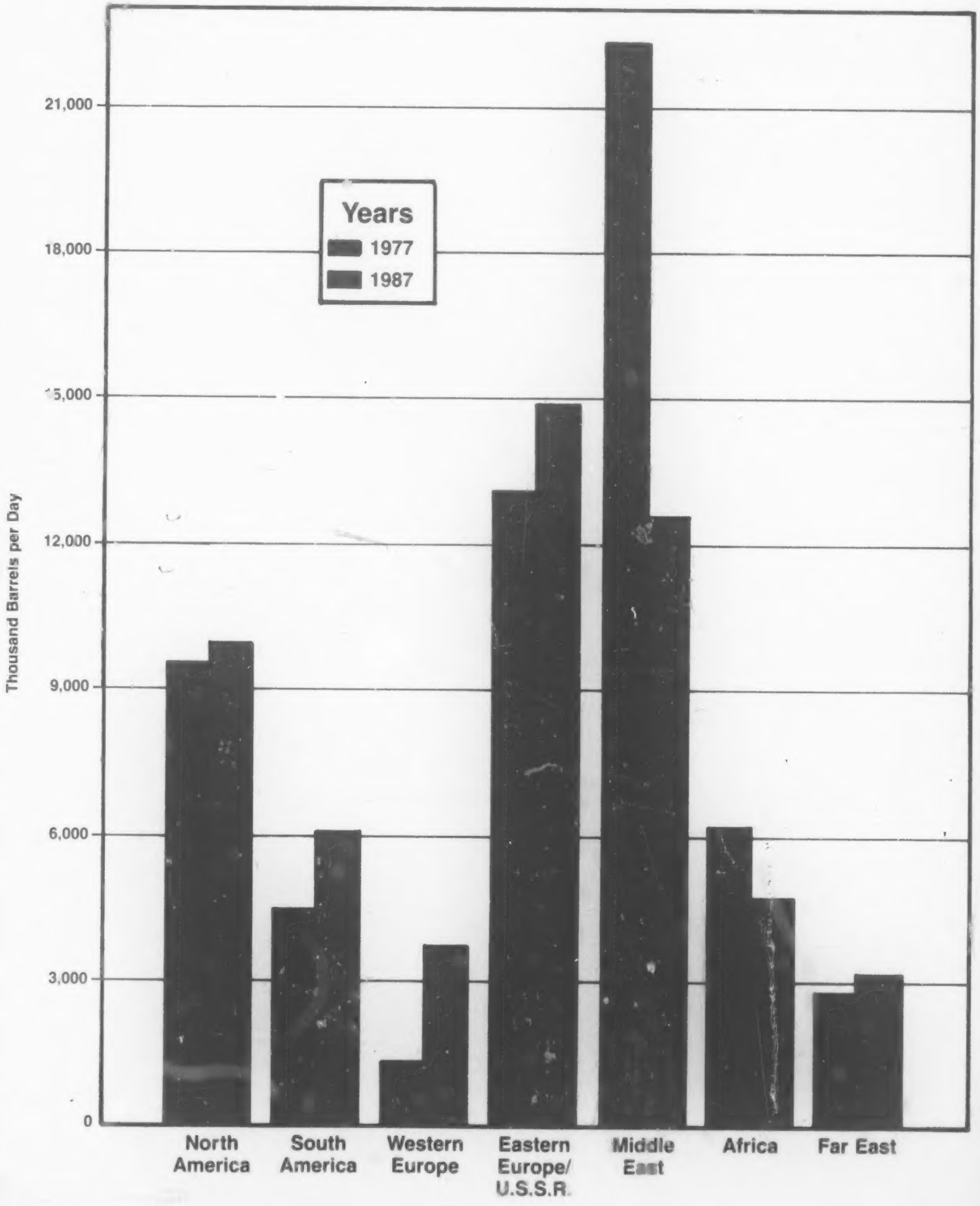
Crude Oil Production in 20 Leading Nations

(Annually as of Jan. 1)

Nation	Production (Add 000 bbl. and b/d) 1987 Total	1987 b/d	1986 Total	1986 b/d	% of Free World Production 1987	% of Free World Production 1986	% of Total World Production 1987	% of Total World Production 1986
U.S.S.R.	4,354,450	11,930	4,292,210	11,754	29.3%	28.7%	21.4%	21.1%
United States	3,047,378	8,349	3,168,852	8,680	20.5	22.2	15.0	15.6
Saudi Arabia	1,464,455	4,012	1,795,070	4,918	9.9	12.0	7.2	8.8
China	953,745	2,613	953,745	2,613	6.4	6.4	4.7	4.7
Mexico	927,465	2,541	887,315	2,431	6.2	5.9	4.6	4.4
Iran	894,616	2,451	710,290	1,946	6.0	4.8	4.4	3.5
United Kingdom	853,370	2,338	915,420	2,508	5.7	6.1	4.2	4.5
Iraq	757,740	2,076	626,340	1,716	5.1	4.2	3.7	3.1
Venezuela	573,780	1,572	575,240	1,576	3.9	3.9	2.8	2.8
Canada	569,400	1,560	537,280	1,472	3.8	3.6	2.8	2.6
United Arab Emirates	530,710	1,454	485,815	1,331	3.6	3.3	2.6	2.3
Nigeria	469,390	1,286	533,265	1,461	3.2	3.6	2.3	2.6
Indonesia	434,715	1,191	461,360	1,264	2.9	3.1	2.1	2.3
Kuwait	377,410	1,034	490,560	1,344	2.5	3.3	1.8	2.4
Norway	344,195	943	306,965	841	2.3	2.1		1.5
Egypt	277,040	759	266,745	813	1.9	2.3	1.7	1.3
Algeria	231,775	635	244,915	671	1.6	1.6	1.1	1.2
India	222,285	609	228,125	625	1.5	1.5	1.1	1.1
Brazil	206,590	566	209,873	575	1.4	1.4	1.0	1.0
Oman	203,305	557	—	—	1.4	—	1.0	—
Total Free World	**14,858,413**	**40,708**	**14,926,362**	**40,894**				
Total World	**20,345,823**	**55,742**	**20,392,092**	**55,696**				

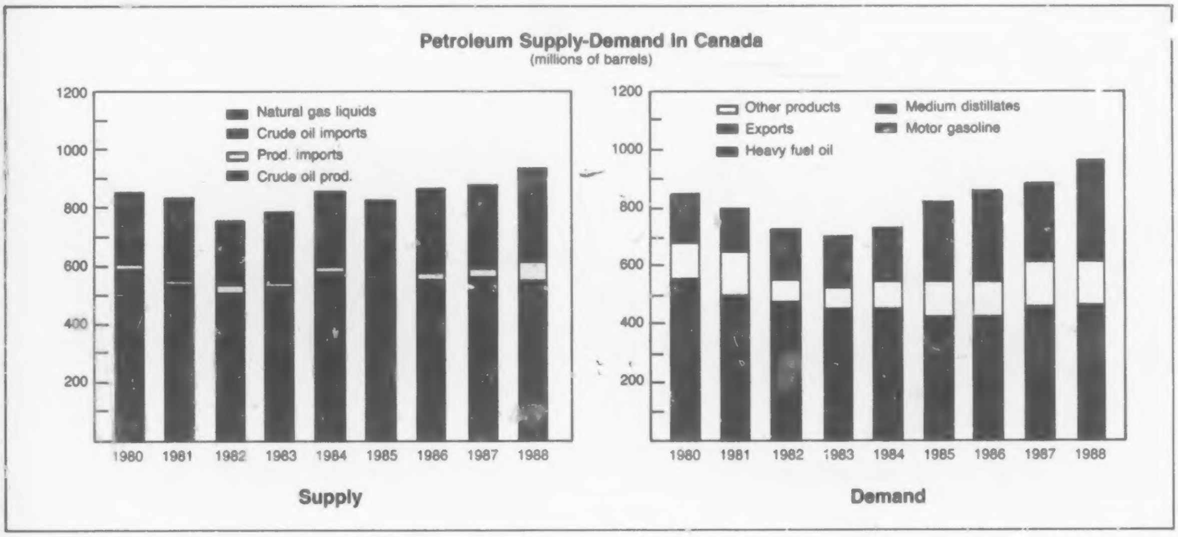
N.B. Libya was ranked 15th in 1986 but was not reported or included in the 1987 totals.
Source: American Petroleum Institute, Basic Data Book, January 1989; percentage relationships by NPN.

World Crude Oil Production, 1977 and 1987



Source: American Petroleum Institute, Petroleum Data Book, Vol. IX, No. 1, published in January 1989

Canadian Oil Market on Upswing


Petroleum Supply-Demand in Canada
(millions of barrels)

The petroleum supply-demand situation in Canada took on a rosier hue last year, with increases shown in every category of production and consumption. In fact, according to data provided by Statistics Canada, supply and demand levels both reached the highest point of the decade of the 1980s.

On the supply side, the total of 940-million bbl. (149-million cubic meters) in 1988 for crude oil and NGL production and crude and product imports exceeded the 1987 total by 60-million bbl., an increase of almost 7%. At the consumption end, demand—including gasoline, middle distillates, heavy fuel oil, exports and other products—soared 9.3% in 1988 to 972-million bbl. Canada, too, became a stronger net exporter of oil products last year, with exports exceeding imports by about 150-million bbl.

Refined product sales (see table below) kept pace with this overall growth pattern, with increases in all categories of products except lubes and greases and aviation gasoline. Big increases were shown in diesel and heavy fuel.

Refined Product Sales in 1988

(Cubic Meters)*

	Aviation Gas	Motor Gas	Aviation Turbine	Kerosene	Diesel	Light Fuel	Heavy Fuel	Lubes & Greases
Newfoundland	4,936	594.611	290,131	35,652	492,349	274,076	513.223	12,086
Prince Edward Island	2,083	180,062	5,540	12,923	56,084	151,138	41,344	2,067
Nova Scotia	1,259	1,147,829	182,184	60,248	615,753	860,101	982,012	22,794
New Brunswick	2,706	968,445	34,474	27,733	510,552	443,418	1,941,437	21,731
Quebec	21,254	7,117,660	1,038,632	172,936	2,997,126	2,226,447	2,178,767	153,460
Ontario	41,181	12,685,512	1,665,417	148,792	4,466,249	2,008,862	1,407,788	414,879
Manitoba	19,461	1,407,709	188,626	39,671	879,618	57,693	64,427	31,585
Saskatchewan	11,312	1,717,069	83,076	59,142	1,199,302	71,517	32,051	40,510
Alberta	16,650	4,612,756	677,758	39,938	2,688.679	64,481	34,521	102,048
British Columbia	34,858	3,606,795	818,667	81,200	2,576,319	403,471	921,748	103,065
Yukon	3,771	58,875	4,890	12,047	68,479	30,619	0	1,068
Northwest Territories	6,555	41,026	78,667	51,924	117,925	62,252	7.695	1,622
Total 1988	**166,026**	**34,138,349**	**5,068,062**	**742,206**	**16,668,435**	**6,654,075**	**8,125,013**	**906,915**
Total revised 1987	**177,230**	**33,224,265**	**4,658,101**	**718,880**	**15,761,850**	**6,290,282**	**6,874,463**	**1,029,370**

*Cubic meters × 6.2883 = barrels
Source: Statistics Canada

Canadian Oil Companies:

			BRANDED SERVICE STATIONS						
Company	Total branded retail outlets	Number of Provinces where marketed	Supplied directly	Supplied through jobbers & commission agents	Lessee/Dealer operated	Salary operated	Commission operated	Full-serve only	Self-serve only
C Corp. Inc.	213	2	64	0	0	0	64	61	—
C. Corp (Ontario) Inc.	94	2	—	—	18	3	48	58	9
Canadian Tire Petroleum Div.	150	6	150	—	—	150	—	—	—
Chevron Canada Ltd.	283	1	176	170	—	107	—	175	100
Esso Petroleum Canada (a)	3,050	12	2,000	1,050	2,650	100	300	2,345	700
Fas Gas Oil Ltd.	96	2	94	—	—	—	94	92	2
Federated Co-operatives Ltd. (b)	358	4	358	0	—	338	12	300	58
Husky Oil Marketing Co.	336	6	336	—	336			249	87
Les Petroles Calex Ltée.	47	2	47	—	—	—	47	44	3
Mohawk Oil Co. Ltd.	397	5	265	132	245	107	45	220	140
Petro-Canada Products	3,429	12	—	—	2,584	150	695	2,416	938
Shell Canada Ltd. (e)	3,500	12	2,268	1,057	2,656	185	484	2,677	578
Sunoco Inc. (b)	631	3	631	0	—	—	—	—	—
Sunys Petroleum Inc.	226	2	226	—	80	1	145	196	30
Texaco Canada (b)	1,818	10	—	—	928	0	890	1,218	580
Turbo Resources Ltd.	282	6	256	26	70	0	212	277	5
Ultramar Canada Inc.	1,396	6	—	—	1,396	—	—	1,170	203

(a) Did not respond; data is from 1986.
(b) Did not respond; data is from 1987.
(c) Includes Beaver—not a subsidiary, but Shell Canada's wholly-owned 'Pribrand' retail outlets.
(d) Includes terminals.
(e) Company estimates.

Brand Names of Gasoline and Motor Oils

Gasoline	Motor Oil
C. Corp. Inc.	
Top Valu Winks Express Shell Sunoco Petro Canada Esso Ultramar Texaco	Top Valu
Chevron Canada Ltd.	
Chevron (r,ur) Chevron Supreme (up)	Chevron Special Chevron Supreme Chevron Delo Chevron Custom
Esso Petroleum Canada	
Esso (r) Esso 2000 (ur) Esso Extra Unleaded (up)	HD HDX Protec Extra Protec Ultra
Fas Gas Oil Ltd.	
Fas Gas (r,ur,up,diesel) Bi-Lo (r,ur,up)	Hi-Performance 5000 Hi-Performance 6000
Federated Co-operatives Ltd.	
Sonic (r,ur,p) Tempo (r,ur,p)	Sonic Silver Sonic Gold
Husky Oil Marketing Co.	
Husky (r,ur,up,d)	Husky Heavy Duty Husky Heavy Duty Special Husky Stratolube Husky Stratoplus Husky Superlube Husky Super Duty
Mohawk Oil Co. Ltd.	
Mohawk (r,ur,up) Speedway (r,ur,up) Payless (r,ur,up)	Mohawk 10W30 Mohawk Multigrade Mohawk Premium Mohawk Heavy Duty Plus Duckhams Canadian Pride
Petro-Canada Products Inc.	
Leaded Regular Plus Unleaded Plus The New 1 Super Unleaded	Multi Motor Oil/Premium Turbo Tested M.O. Super Plus 15W40
Shell Canada Ltd.	
Shell (r,ur,up) Beaver (r,ur,up)	Shell X100 Shell TLO Shell Extrema Rotella
Sunoco, Inc.	
Sunoco Regular (r) Sunoco ½&½ Leaded (r,up) Sunoco Premium Leaded (r,up) Sunoco Regular Unleaded (ur) Sunoco ½&½ Unleaded (ur,up) Sunoco Premium Unleaded (up) Pronto (r,ur,up)	CAM2
Sunys Petroleum Inc.	
Sunys (r,ur,p,diesel) Econobec (r,ur,p,diesel)	Sunys
Texaco Canada Ltd.	
Texaco (r,ur,up)	Havoline Supreme Havoline URSA Super Plus Multi-grade URSA Super Plus Single-grade
Turbo Resources Ltd.	
Turbo	Flo-Rite Turbo Red Ram
Ultramar Canada Inc.	
Ultramar Sterling XL Gillies Guy Champion	Ultralube Ultralube Super Ultralube Super Plus Champion

KEY
Gasoline:
(r) Regular
(p) Premium
(ur) Unleaded
(up) Unleaded Premium
Motor Oils: Brand names are listed lowest-price grade first.

How Distribution is Organized

	BRANDED JOBBERS/COMMISSION AGENTS				BULK PLANTS				TERMINALS			
		SELLING . . .				COMPANY OPERATED . . .				COMPANY OPERATED . . .		
Full-serve/ Self-serve	Total	Gasoline only	Fuel Oil only	Gasoline and Fuel Oil	Total	Salary operated	Commission operated	Jobber operated	Total	Salary operated	Commission operated	Jobber operated
3	200	200	0	0	0	0	0	0	0	0	0	0
2	—	43	—	—	0	—	—	—	0	—	—	—
—	0	—	—	—	—	—	—	—	—	—	—	—
8	—	—	—	47	—	—	[illegible]	0	—	3	—	0
5	550	0	0	550	600	0	600	0	0	0	0	0
—	—	—	—	96	0	0	0	0	1	1	0	0
0	12	12	—	—	300	295	5	0	1	1	—	—
—	336	—	—	—	—	—	—	—	—	—	—	—
—	47	47	—	—	0	0	0	0	1	1	0	0
37	49	45	—	4	5	—	—	5	—	—	—	—
75	308	—	—	308	401	32	369	0	34	25	9	0
70	274	—	—	274	470(d)	25	270	6				
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
20	130	0	0	130	240	229	11	0	27	27	0	0
0	52	0	0	52	32	0	29	3	0	0	0	0
23	—	—	—	—	—	—	—	—	—	—	—	—

Branded Retail Outlets in Canada

Company	Total branded retail outlets	Number of Provinces	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Prince Edward Island	Manitoba	Saskatchewan	Alberta	British Columbia	Northwest Territories	Yukon
C. Corp. Inc.	213	2	—	—	—	137	76	—	—	—	—	—	—	—
C. Corp (Ontario) Inc.	94	2	—	—	—	2	92	—	—	—	—	—	—	—
Canadian Tire Petroleum Division	150	6	—	—	3	27	102	—	4	2	12	—	—	—
Chevron Canada Ltd.	283	1	—	—	—	—	—	—	—	—	—	283	—	—
Esso Petroleum Canada (a)	3,050	12	—	—	—	—	—	—	—	—	—	—	—	—
Fas Gas Oil Ltd.	96	2	—	—	—	—	—	—	—	16	80	—	—	—
Federated Co-operatives Ltd. (b)	358	4	—	—	—	—	—	—	60	220	50	28	—	—
Husky Oil Marketing Co.	336	6	—	—	—	—	46	—	27	45	126	86	—	6
Les Petroles Calex Ltée	47	2	—	—	—	44	3	—	—	—	—	—	—	—
Mohawk Oil Co. Ltd.	397	5	—	—	—	—	3	—	28	39	202	125	—	—
Petro-Canada Products	3,429	12	28	110	83	684	1,238	12	217	261	396	400(c)	—	—
Shell Canada Ltd. (e)	3,500(d)	12	1	102	121	858	1,193	27	299	246	304	335	9	5
Sunoco Inc. (b)	631	3	—	—	—	155	474	—	—	—	2	—	—	—
Sunys Petroleum Inc.	226	2	—	—	—	30	196	—	—	—	—	—	—	—
Texaco Canada (b)	1,818	10	9	86	111	507	623	13	81	94	179	115	—	—
Turbo Resources Ltd.	282	6	—	—	—	—	1	—	16	70	157	37	2	—
Ultramar Canada Inc.	1,396	6	244	81	32	875	149	15	—	—	—	—	—	—

(a) Did not respond; data is from 1986.

(b) Did not respond; data is from 1987.

(c) Includes outlets in Yukon and Northwest Territories.

(d) Includes Beaver—not a subsidiary, but Shell Canada's wholly-owned 'Pribrand' retail outlets.

(e) Company estimates.

Gasoline Shares by Key Categories—1988

In 1985, a new study on Canadian retail gasoline market shares was completed by MPSI Americas Inc., Tulsa, Okla., a company specializing in international computer software and information services in addition to market research and planning. Now, MPSI has released its 1988 study.

Data for both 1988 and 1987 are presented in the table below to provide an overview of trends within the various gasoline marketing segments. This year, average gallonage totals are shown in both liters and U.S. gallons. Refer to the companion market share study for the U.S. on page 000 for a comparison between the two countries.

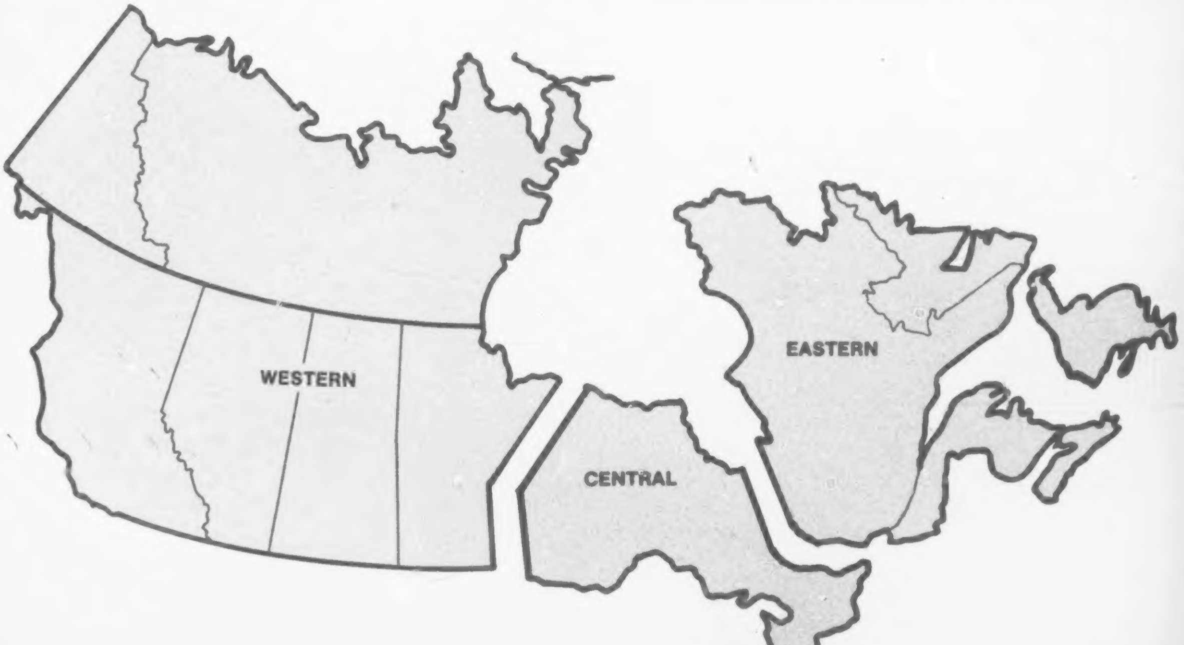
The study presents, on both a national and regional basis, market shares and percentages of outlets for conventional service stations, gasoline pumpers, convenience stores that sell gasoline, plus a general category of "others" including car washes, garages and other facilities where gasoline is secondary.

This study is concentrated in Canada's metropolitan areas, where most gasoline is marketed. It does not count rural and highway vendors which, while important to the industry, do not add significantly to overall consumption data.

Regional and National Market Shares

	Service Stations		Pumpers		Convenience Food Stores		Others		Total	
	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987
Eastern Region										
• % of Outlets	47.4	51.4	26.3	25.7	10.5	7.3	15.8	15.6	100.0	100.0
• % of Volume	44.0	47.0	40.6	39.7	7.9	6.0	7.5	7.3	100.0	100.0
• Avg. Monthly Volume (Liters)*	133,918	126,765	222,573	214,334	107,498	113,205	67,983	64,248	144,013	138,500
• Avg. Monthly Volume (U.S. gal.)	35,428	33,536	58,882	56,702	28,439	29,948	17,985	16,997	38,097	36,640
Central Region										
• % of Outlets	50.6	53.5	34.5	31.1	3.0	1.8	11.9	13.6	100.0	100.0
• % of Volume	46.6	49.2	46.8	43.6	2.0	1.3	4.6	5.9	100.0	100.0
• Avg. Monthly Volume (Liters)*	198,345	189,228	292,760	289,135	142,705	141,957	82,452	89,500	215,350	205,846
• Avg. Monthly Volume (U.S. gal.)	52,472	50,060	77,450	76,491	37,753	26,455	21,813	23,677	56,971	54,457
Western Region										
• % of Outlets	37.1	40.8	44.3	40.6	8.0	5.6	10.6	13.0	100.0	100.0
• % of Volume	35.7	38.1	56.2	53.7	4.5	3.0	3.6	5.2	100.0	100.0
• Avg. Monthly Volume (Liters)*	186,768	209,373	246,957	267,955	108,643	109,752	67,027	79,114	194,454	210,619
• Avg. Monthly Volume (U.S. gal.)	49,410	55,390	65,333	70,888	28,741	29,035	17,732	20,930	51,442	55,719
Total Canada										
• % of Outlets	45.8	49.3	34.3	31.7	7.0	4.8	12.9	14.2	100.0	100.0
• % of Volume	42.7	45.2	47.9	45.6	4.3	3.1	5.1	6.1	100.0	100.0
• Avg. Monthly Volume (Liters)*	172,837	170,380	258,044	260,090	113,672	116,825	72,869	77,248	185,073	182,985
• Avg. Monthly Volume (U.S. gal.)	45,724	45,074	68,266	68,807	30,072	30,906	19,278	20,436	48,961	48,409

*1 gal. = 3.78 Liters.
Source: MPSI Americas, Inc., Tulsa, Oklahoma



Canadian Statistics

Motor Vehicle Registrations 1987

	Passenger Cars	Trucks	Buses	Motorcycles	Others	Total Vehicles	Trailers	Off-road		Licensed gasoline outlets
								Snowmobiles	Other	
Newfoundland	184,553	82,723	2,081	10,486	6,949	286,792	30,661	65,358	13,320	..
Prince Edward Island	60,169	19,159	425	2,119	490	82,362	1,344	..	..	..
Nova Scotia	335,196	134,963	1,565	17,693	3,532	492,949	39,860	6,870	5,879	..
New Brunswick	292,736	126,677	..	10,970	6,252	436,635	55,765	..	22,326	1,213
Quebec	2,682,173	446,630	14,011	89,442	85,216	3,317,472	663,845	83,397	251,586	6,189
Ontario	4,402,704	998,473	27,110	138,797	5,843	5,572,927	974,467	263,681	62,038	7,257
Manitoba	540,304	219,586	161	16,798	17	776,866	98,436	38,310	206	..
Saskatchewan	515,271	278,344	4,518	6,457	495	805,085	101,753	8,952	..	..
Alberta	1,151,276	554,314	9,040	42,490	939	1,758,059	346,614	14,237	18,693	..
British Columbia	1,581,831	632,097	..	76,807	..	2,290,735	265,431	50,840	..	..
Yukon	8,156	13,604	205	710	..	22,675	4,576	428	..	..
Northwest Territories	18,137	1,927	105	1,553	64	21,831	5,213	..	788	..
Canada	**11,772,506**	**3,508,497**	**59,266**	**414,322**	**109,797**	**15,864,388**	**2,587,965**	**532,073**	**374,836**	**14,659**

NB: e estimated
"Off-road other" includes farm tractors, construction equipment etc.
.. figures not available
Source: All tables this page from Statistics Canada.

Automobiles Per Household 1988

estimates in thousands

	Households	Total Households with Vehicles	Households with automobiles				without autos	Vans or trucks	
			Total	1 auto	2 autos	3 or more autos		with 1	Households with 2 or more
Newfoundland	166	129	108	84	20	4	58	49	—
Prince Edward Island	44	39	36	26	8	—	8	13	—
Nova Scotia	309	251	230	173	48	9	79	68	11
New Brunswick	238	202	183	135	43	6	55	73	10
Quebec	2,416	1,933	1,834	1,310	454	70	583	334	19
Ontario	3,341	2,789	2,672	1,725	761	186	670	603	69
Manitoba	380	311	287	201	68	18	92	101	17
Saskatchewan	358	317	289	202	70	17	69	126	36
Alberta	848	753	693	437	201	54	155	264	79
British Columbia	1,145	986	911	628	226	57	234	333	38
Canada 1988	**9,244**	**7,710**	**7,242**	**4,919**	**1,900**	**423**	**2,002**	**1,964**	**283**

New Motor Vehicle Sales

	Total new motor vehicles	Passenger cars	Comm. vehicles	Cars			Commercial Vehicles	
				North America	Japan	Other Countries(1)	North America	Other Countries
1988	1,565,[illegible]	1,056,310	509,191	724,733	243,835	87,742	459,777	49,414
1987	1,533,637	1,065,093	468,544	700,930	243,288	120,875	368,423	51,355
1986	1,515,920	1,095,313	420,607	761,169	203,304	130,840	417,189	52,184

(1) Excludes Japanese and North American manufactured vehicles.

Factory Sales of Auto Batteries

	1988	$
Replacement:		
Automotive & Heavy-duty Commercial	3,329,347	170,333,355
Other batteries (incl marine, recreational vehicle and railroad diesel starting)	136,004	7,720,918
For Direct Motive Power:		
Large cells (incl railroad & fork lift)	193,73[illegible]	26,64[illegible]65
Light Industrial (incl golf cart, wheel chair and sweeper)	19,935	1,904,[illegible]61

NB: Publishing method changed. Corresponding 1987 data not available.

Drivers' Licenses 1987

	Operators (drivers & chauffeurs)	Temporary (instructor permits)
Newfoundland	295,560	7,402
Prince Edward Island	80,848	..
Nova Scotia	547,123	15,841
New Brunswick	428,594	25,140
Quebec	3,848,521	..
Ontario	5,978,105	..
Manitoba	755,877	..
Saskatchewan	651,609	..
Alberta	1,804,446	104,804
British Columbia	2,497,626	..
Yukon	24,354	1,078
Northwest Territories	14,332	..
Canada	**16,926,995**	**154,265**

.. Figures not available.

Principal Heating Fuels in 1988

(000 Households)

	Oil	Piped Gas	Bottled Gas	Electricity	Other	Wood	Total Households
Newfoundland	58	—	—	69	—	38	166
Prince Edward Island	33	—	—	—	—	9	44
Nova Scotia	179	—	6	71	6	47	309
New Brunswick	80	—	—	109	—	48	238
Quebec	552	175	—	1,589	15	84	2,416
Ontario	588	2,006	18	634	—	94	3,341
Manitoba	19	218	—	129	—	12	380
Saskatchewan	29	297	5	20	—	...	358
Alberta	15	798	14	10	4	...	848
British Columbia	151	612	...	309	—	60	1,145
Canada	**1,704**	**4,106**	**61**	**2,941**	**30**	**403**	**9,244**

NB: Data from a sample survey only.
—amount too small
... figures not applicable
"Other" includes Coal and Coke.

Canadian Pump Prices More Than 50% Higher Than U.S. Postings

Canada is a land of many wonders, but low- priced gasoline is not one of them. According to the latest data available on average gasoline prices—from a January 1988 survey—Canadian motorists were shelling out 52.6¢ / gal. (calculated in U.S. currency) more at the pump than their American neighbors across the border. That's almost 56% higher than the average U.S. pump price at the time.

Approximately 73% of this price spread—about 38.4¢/gal.—was devoured by Canadian federal and provincial taxes. Those taxes, totaling 63¢/gal. (U.S.) in January 1988, devoured about 43% of the $1.47 average price of a Canadian retail gallon.

By contrast, the average sum of state and federal taxes on a U.S. gallon was 24.6¢ in January, according to the monthly Petroleum Product Market Report published by Energy, Mines and Resources (EMR) Canada. The pricing data is from Statistics Canada monthly price surveys. Prices shown in the adjacent bar chart have been converted from Canadian dollars (the January exchange rate was 1.1914) to U.S. dollars and the gallon amount is derived from the metric liter measure now commonly used in Canada (1 gal. = 3.78 liters).

The Canadian price was computed on a "major center" weighted average of regular leaded and regular and premium unleaded gasolines sold at both full service and self service stations. The U.S. price shown represents city average retail prices for all types of gasoline as published by the Dept. of Energy.

The EMR report offers a vivid illustration of some of the differences that affect Canadian and U.S. marketing. The contrast between retail postings for full service and self service gasoline is particularly striking. "For example, in Canada, the average full-serve/self-serve differential is about 1.0¢ a liter (approximately 3.2¢ a U.S. gal.)," EMR says, "while in the U.S. the differential is approximately 9¢ a liter (about 28¢) a U.S. gal.). Therefore, comparing the full-serve prices of the two countries would generally yield a smaller differential than would a comparison of self-serve prices."

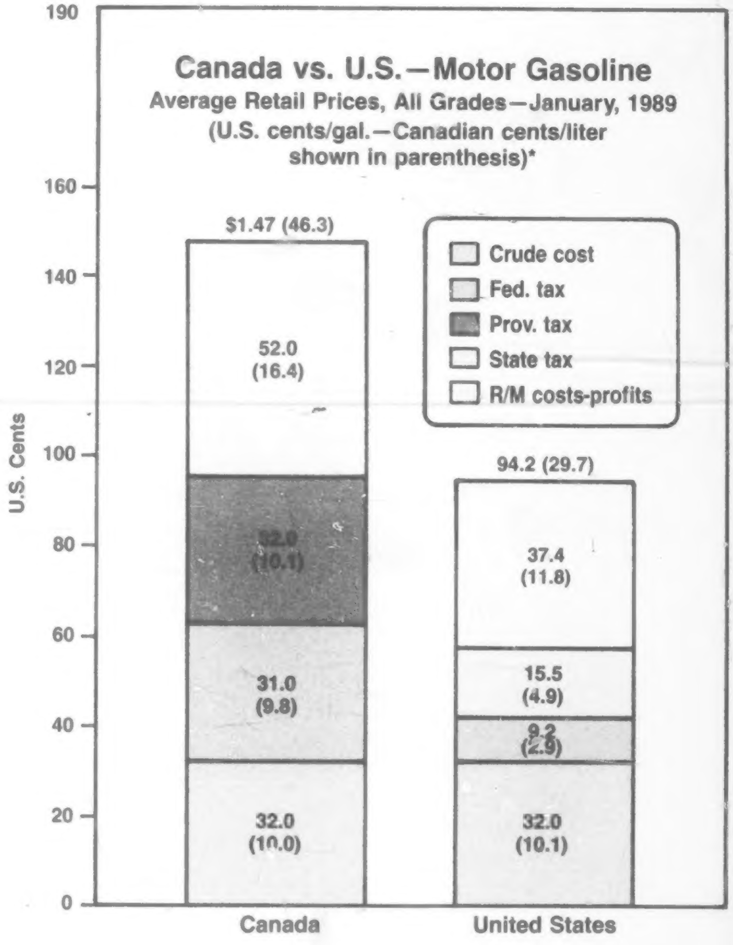
The much narrower spread between full service and self service prices in Canada undoubtedly influences the higher percentage of patronage at full service pumps in that country. Slightly more than half of Canadian gasoline is sold at full service pumps versus only 20% in the U.S.

One Canadian marketer explains that the minimal full-serve/self-serve spread has helped independent marketers "find a niche in the marketplace," allowing them to offer full-service gasoline at self-service prices [*NPN*—Feb. '88, p28].

The EMR says that the larger component in Canada for refining/marketing costs and profits results from structural differences between the two markets. "Economies of scale in refining, distribution and retailing facilities favor U.S. refiners and marketers," the report explains.

Although crude costs were virtually the same for marketers in both countries in January, historically they have been higher in Canada. The differential in crude costs is the result of longer flow-through periods and the use of higher average quality crude in Canada, EMR says. Crude costs are figured as the average refinery acquisition costs lagged by 60 days in Canada and 45 days in the U.S.

The EMR's monthly reports present a wide range of pricing and tax data.



*Exchange rate - January 1989 = 1.1914

Source: Energy Mines and Resources. Petroleum Product Market Report. Price data from Statistics Canada.

LPG Sales by States and Uses—1987

(Add 000 gal.)

	Residential and Commercial	Chemical	Industrial (1)	Engine Fuel	Utility Gas	Farm	Other (2)	Total (3, 4)
Alabama	147,622	w	11,828	12,430	w	26,415	1,320	199,719
Alaska	8,715	0	w	364	0	w	w	11,799
Arizona	57,459*	0	6,494	8,105	0	3,886	2,817	81,899
Arkansas	99,920	w	3,596	9,337	w	35,644*	2,751*	151,705
California	290,295	53,996*	241,241	112,283*	4,048	34,886	21,839*	760,059
Colorado	70,699	0	8,420*	4,302	0	5,820	1,291	93,217
Connecticut	38,309	w	14,419	2,328	w	2,348	2,497*	61,194
Delaware	23,699	w	4,374	335	0	3,010	w	36,717
Florida	264,214*	w	22,750	21,247	17,236	17,068	8,574	351,349
Georgia	178,427	w	16,627	14,197	267	45,450	2,659	259,010
Hawaii	w	0	0	w	0	w	0	7,427
Idaho	12,064	0	5,824	3,845	0	2,787	847	25,367
Illinois	228,463	254,780*	40,067	42,436	w	123,367	5,062*	724,026
Indiana	207,142	w	11,233	17,899	w	81,559	5,258*	390,877
Iowa	175,782	w	5,518	6,534	w	181,744	3,731*	375,396
Kansas	89,534	w	34,950	15,258	w	46,374	4,819*	321,476
Kentucky	164,343	w	115,516*	9,744	w	19,639	737	333,929
Louisiana	52,707	736,047	16,214*	11,278	0	9,884	4,557*	848,555
Maine	38,809	w	8,641	1,685	w	192	372	51,248
Maryland & D.C.	45,793	0	11,787	3,515	w	3,857	3,715*	69,569
Massachusetts	65,539	0	12,117	5,570	18,0[illegible]	752	953*	103,691
Michigan	432,612	w	60,692	46,572	3,5[illegible]	53,042	105,429*	817,843
Minnesota	188,417	0	15,284	9,852	w	99,503	1,817*	316,810
Mississippi	104,466	0	11,003*	19,582	0	16,441	851*	153,275
Missouri	285,516	w	13,111	18,149	w	42,706	1,332*	362,524
Montana	34,081	w	8,563	4,222	0	2,952	w	50,973
Nebraska	85,115	w	4,596	6,866	0	102,779	59	199,576
Nevada	28,961	0	7,016	2,367	0	404	1,107	39,855
New Hampshire	59,108	0	7,929	2,029	2,457	2,425	w	82,561
New Jersey	53,439*	83,499*	21,068	8,779	w	2,149	1,585*	252,581
New Mexico	52,970	w	2,473	8,903	0	2,012	990	67,733
New York	184,829	w	15,619	9,452	w	7,246	2,968*	221,553
North Carolina	186,925	w	37,951	13,611	w	100,851	16,777*	358,596
North Dakota	44,387	w	4,979	1,898	w	30,593	6,583	88,589
Ohio	282,756	w	49,103	48,083	3,716	66,368	5,196	534,490
Oklahoma	94,908	w	39,874	12,713	w	37,292	478	241,441
Oregon	23,207	0	11,386*	23,446	0	5,034*	775	64,205
Pennsylvania	108,235	w	47,451	16,538	w	17,748	14,482*	205,314
Rhode Island	14,644	0	5,916	906	w	103	w	26,112
South Carolina	94,911	w	21,614	7,635	2,262	16,602	1,545*	145,110
South Dakota	90,554	0	5,389	6,288	w	36,300	725	139,392
Tennessee	97,912	w	10,437	16,394	w	17,946	1,539*	146,307
Texas	366,965	4,839,339	104,932*	55,942	w	61,871*	7,678*	5,556,446
Utah	23,632*	w	7,020*	6,012*	w	2,834	2,301	51,043
Vermont	36,848	0	4,908	1,159*	0	373	w	44,281
Virginia	90,136	w	26,319	8,937	w	26,554	13,535*	165,871
Washington	36,862	0	13,483*	32,958	0	5,468	479	106,532
West Virginia	13,018	w	986	1,564	w	2,461	w	38,622
Wisconsin	236,341	0	13,952	17,186	w	46,633	7,073*	321,334
Wyoming	57,659	w	12,415*	5,178	w	6,406	682	99,922
U.S. Total	**5,671,384**	**6,307,491**	**1,293,176**	**718,013**	**188,358**	**1,458,802**	**498,641**	**16,571,120**

* Propane only; butane withheld

w—Data withheld to avoid disclosing reports for individual companies. These reports included in totals.

(1) Includes refinery fuel.

(2) Includes secondary recovery of petroleum and synthetic natural gas feedstock.

(3) API LP-gas sales survey does not include LP-gas export sales. Also, API data on LP-gas refinery inputs is used in determining LP-gas production/sales in preference to the volume reported by EIA, see page 3.

(4) Significant changes in some states from 1985 and earlier LP-gas sales are based on additional information furnished to API by natural gas liquids pipeline companies.

LPG Sales Trends in Recent Years (a)

Major Domestic Markets (Add 000,000 gal.)

	Total U.S. Sales		Residential-Commercial		Chemical		Internal Combustion		Industrial		Farm	
Year	Vol.	% Change	Vol.	% Change	Vol.	% Change	Vol.	% Change	Vol.	% Change	Vol.	% Change
1987	16,157	12.8%	5,693	0.2%	6,307	47.8%	718	(13.5%)	1,293	(3.6%)	1,459	(10.7%)
1986	14,325	(5.0)	5,607	(3.2)	4,267	(0.9)	821	(12.8)	1,341	3.2	1,634	(4.2)
1985	15,080	(0.3)	5,794	11.4	4,307	4.8	942	1.0	1,299	(31.2)	1,706	2.6
1984	15,129	10.5	5,203	(14.6)	4,109	26.7	951	(30.2)	1,888	54.7	1,663	40.7
1983	13,688	(1.6)	6,090	(1.5)	3,244	(3.5)	1,362	9.8	1,220	(6.9)	1,183	(8.0)
1982	13,915	(3.3)	6,180	(2.1)	3,362	(3.2)	1,240	9.7	1,310	(5.0)	1,285	(12.1)
1981	14,395	(3.8)	6,310	(3.4)	3,474	(3.1)	1,130	3.6	1,380	(10.9)	1,463	(4.4)
1980	14,969	(8.9)	6,531	(4.9)	3,584	(11.3)	1,090	4.3	1,548	(20.2)	1,529	(15.4)
1979	16,432	9.4	6,871	1.2	4,043	12.7	1,045	5.5	1,940	44.8	1,764	—

This is as far back as the restated API/LPGA data go on sales trends. The figures below are Energy Information Administration data and are not essentially comparable to the restated data above. In the data below, the last column was for "all other uses" instead of farm consumption.

	Total U.S. Sales		Residential-Commercial		Chemical		Internal Combustion		Industrial		Farm	
Year	Vol.	% Change	Vol.	% Change	Vol.	% Change	Vol.	% Change	Vol.	% Change	Vol.	% Change
1977	15,508	-3.2	7,169	-2.0	3,578	-12.4	1,145	-2.1	1,044	—	2,573	7.5
1975	15,200	-6.8	7,020	-2.9	4,172	-23.0	1,162	-11.3	1,082	1.2	1,763	38.3
1970	15,271	26.6	7,569	41.6	5,003	24.8	1,336	11.9	897	32.1	467	125.6
1965	11,434	33.7	5,346	26.5	4,008	54.6	1,194	33.0	679	13.9	207	-23.0
1960	8,579	40.1	4,225	50.8	2,593	36.5	898	37.7	596	13.7	269	9.3

(a) In 1984, Energy Information Administration suddenly terminated collection of LPG sales data for budgetary reasons. American Petroleum Institute, Liquefied Petroleum Gas Assn. and others began a cooperative effort to provide the missing data annually. The 1983 and 1984 data were published in March, 1986. The new information is based on EIA data, plus API and LPGA, and are restated for the years 1979 through 1984. Utility gas, refinery fuel and miscellaneous uses are included in U.S. totals but are not stated separately.
Source: National LP-Gas Assn. and API.

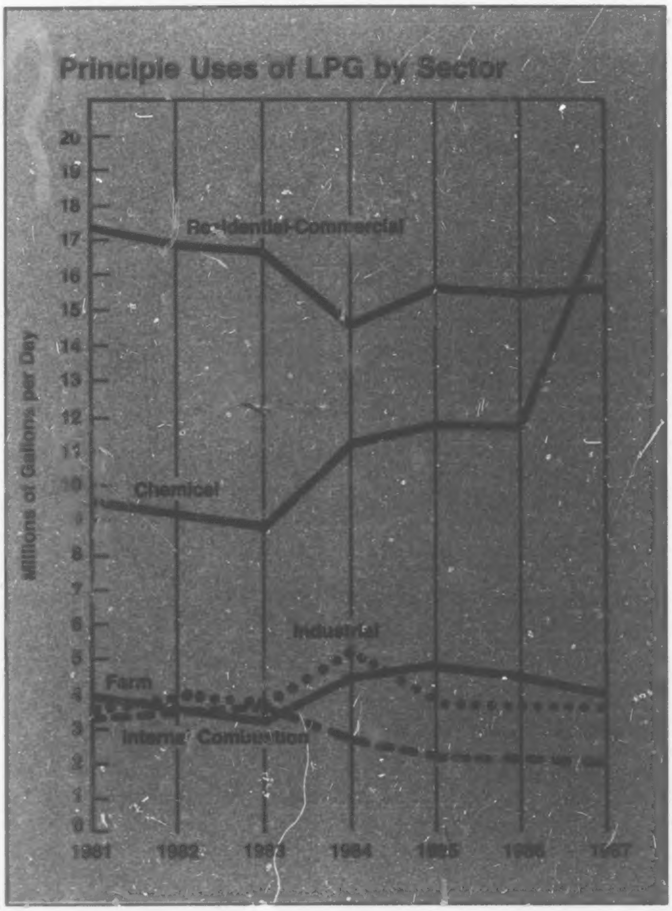
LPG Sales Soar In 1987 - - Chemical Consumption Leads The Way

Following the downward sales trends of recent years, consumption of liquefied petroleum gas had a big spurt in 1987, picking up almost an additional 2-billion gal. for an overall increase of 12.8%.

This is the biggest increase in LPG sales attained since the early 1970's, and it also topped the 1984 upswing of 10.5%. That was the only other year in this decade showing an increase in volume.

However, this overall sales picture may be distorted somewhat by the exceptional showing in chemical consumption, which was up a phenomenal 47.8%. Other segments showed only modest sales increases or net declines for the year.

In the table above, LPG used in refineries is included in industrial consumption. Other secondary uses are lumped together in the U.S. total.



LPG Sales by States, 1981-'87

(thousands by gal.)

	1987(2,3,4)	1986(2,3,4)	1985(2,3)	1984(2,3)	1983(1)	1982(1)	1981(1)
Alabama	199,719	175,072	174,219	178,075	206,881	213,548	236,176
Alaska	11,799	13,300	14,889	w	24,783	36,139	21,925
Arizona	81,899	82,649	76,034	66,727	73,890	73,127	72,553
Arkansas	151,705	167,503	176,381	168,904	190,425	193,913	182,832
California	760,059	226,324	776,882	739,859	638,197	625,100	621,623
Colorado	93,217	89,478	105,256	103,705	167,763	225,710	194,561
Connecticut	61,194	46,383	51,680	51,282	54,967	59,244	61,695
Delaware	36,717	33,084	41,825	49,652	43,007	39,365	42,563
Florida	351,349	431,608	399,436	347,271	396,833	378,633	434,344
Georgia	259,010	274,184	291,335	263,364	288,293	283,259	324,803
Hawaii	7,427	6,712	6,296	w	23,140	37,757	27,108
Idaho	25,367	30,718	36,230	31,815	39,089	44,525	34,717
Illinois	724,026	764,188	788,693	794,966	624,976	613,051	655,106
Indiana	390,877	329,913	328,805	357,416	321,871	282,080	301,838
Iowa	375,396	588,186	591,080	528,416	441,185	408,322	357,245
Kansas	321,476	212,224	611,981	756,234	345,937	273,425	236,421
Kentucky	333,929	270,554	284,430	260,962	214,026	218,674	235,841
Louisiana	848,555	896,539	952,434	982,522	236,384	202,029	248,899
Maine	51,248	42,465	26,533	22,935	33,096	38,113	34,072
Maryland & D.C.	69,569	59,584	75,501	96,840	89,809	77,805	93,723
Massachusetts	103,691	94,715	71,752	65,990	88,042	105,076	121,024
Michigan	817,843	801,192	720,361	484,763	431,990	327,955	278,640
Minnesota	316,810	397,852	356,330	333,725	313,466	297,694	264,838
Mississippi	153,275	147,132	208,514	218,242	225,201	233,627	225,792
Missouri	362,524	384,048	372,837	340,805	411,025	455,980	407,099
Montana	50,973	63,384	61,597	49,258	62,941	77,359	54,940
Nebraska	199,576	163,284	176,763	149,236	156,875	180,572	166,829
Nevada	39,855	45,898	47,390	36,366	40,072	38,652	33,836
New Hampshire	82,561	71,272	64,713	50,017	59,096	64,583	56,732
New Jersey	252,581	207,911	232,104	264,907	111,901	124,038	141,364
New Mexico	67,733	71,050	140,102	153,130	158,873	154,427	108,945
New York	221,553	208,275	207,808	208,193	262,584	245,749	264,125
North Carolina	358,596	314,373	323,396	299,367	282,743	275,717	303,417
North Dakota	88,589	89,402	26,811	31,464	47,613	66,273	73,781
Ohio	534,490	520,397	603,114	504,464	662,365	867,725	955,760
Oklahoma	241,441	280,609	400,132	272,150	249,347	260,694	284,961
Oregon	64,205	71,896	67,666	60,694	68,683	64,582	70,612
Pennsylvania	205,314	186,764	228,144	239,876	225,533	222,533	248,850
Rhode Island	26,112	24,500	20,888	12,962	15,338	15,699	13,537
South Carolina	145,110	122,967	134,045	108,489	125,485	127,860	143,156
South Dakota	139,392	104,189	86,254	69,586	88,814	101,433	89,727
Tennessee	146,307	166,793	149,979	137,847	138,024	116,009	79,904
Texas	5,556,446	3,730,949	3,749,674	4,066,334	1,000,960	1,048,020	1,419,233
Utah	51,043	48,993	60,931	62,630	66,121	71,663	48,817
Vermont	44,281	37,026	33,848	28,321	38,814	41,955	33,823
Virginia	165,871	141,903	162,529	157,263	113,591	132,161	140,183
Washington	106,532	94,972	88,627	92,533	96,114	83,408	83,450
West Virginia	38,622	38,200	35,663	15,031	22,178	26,978	36,676
Wisconsin	321,334	346,983	361,689	364,777	337,044	280,861	259,668
Wyoming	99,922	67,828	76,241	75,340	88,071	120,004	93,247
Totals	16,157,120	14,325,445	15,079,822	14,789,925	10,443,456	10,553,086	10,921,011

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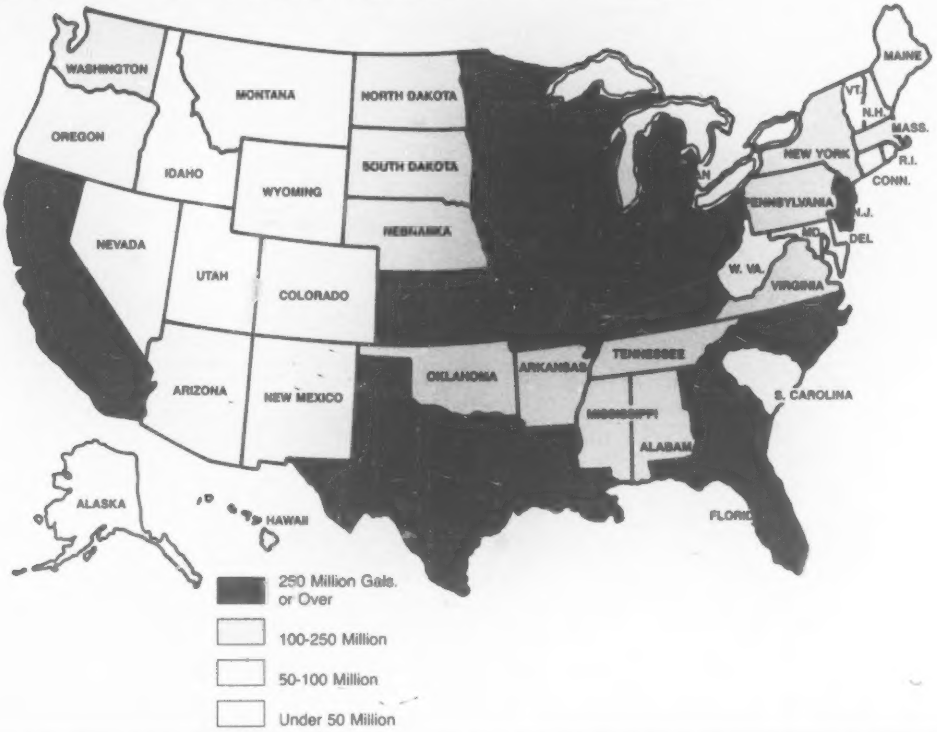
w-Data withheld to avoid disclosing reports for individual companies. These reports included in totals: (1)Does not include chemical feedstock use: (2) Does include chemical feedstock use: (3) APILP-sales survey does not include LP-gas export sales. Also, API data on LP-gas refinery inputs is used in determining LP-gas production/sales in preference to the volume reported by EIA, see page 3: (4)Significant changes in some states from 1985 and earlier LP-gas sales are based on additional information furnished to API by natural gas liquids pipeline companies.

Source: NLPGA and API.

Where LPG Was Used in 1987



NO. 1 RATED IN 1989 EPA EDISON RESULTS
VPLT COMPUTERIZED PRECISION TANK TEST SYSTEM ™ (Patented)

UNMATCHED SPECIFICATIONS - TOP EPA EDISON RESULTS

The patented **VPLT Computerized Precision Tank Test System** provides unmatched performance specifications and the most accurate precision leak test system available for all underground storage tanks. The VPLT System exceeds all 1989 EPA, NFPA 329, Federal, State and Local regulatory standards for precision tank testing. Using temperature measurement precision of .0002 degree C, 5 to 10 temperature sensors, liquid level precision of .000022 inch, and a totally computerized system, the VPLT System detects a .048 gph leak with a .95 Pd/.05 Pfa. The VPLT System even meets the more stringent requirement of .99 Pd/.01 Pfa at .1 gph that exists in certain areas of the United States.

TESTS TANKS IN EITHER OVERFILL OR UNDERFILL CONDITION

Only the VPLT System performs an underfill precision tank test at 95% of tank capacity per EPA guidelines, thus eliminating filling of dry-line piping and providing the following advantages:

- Quicker, more accurate test
- Vapor pocket errors eliminated
- Tank overfilling problems eliminated
- Minimizes pollution potential
- Topping errors eliminated
- No unnecessary excavations

TESTS SPECIAL TANKS

- Large tanks from 20,000 to 1,000,000 gallons
- Chemical
- Manifolded
- Open
- Siphoned
- Sumps
- Heated
- Waste Oil
- Manway
- Rectangular
- Vertical

UNMATCHED COST SAVINGS

Top Pd/Pfa means fewest: miscalls, unnecessary excavations, pollution problems, and unneeded retests. Other customer benefits:

- Minimal downtime
- Leak pinpointing without excavation
- No inconclusive tests
- Tests up to 4 tanks at once

NATIONWIDE TESTING BY NDE ENVIRONMENTAL AND LICENSEES

The VPLT System is field proven with nationwide testing for the past five years by NDE Environmental Corporation and authorized licensees. Testing is performed by personnel fully trained at NDE Headquarters.

Comparison of Volumetric Leak Detection Methods, Underfilled and Overfilled Tanks *
Results of November 7, 1988, December 18, 1988 and January 27, 1989 at EPA Edison Facilities

METHOD	EPA Leak Detection (0.1 GPH Leak) .95Pd/.05Pfa	Confidence Detecting Leak of 0.1 GPH	Probability of Wrongly Predicting 0.1 GPH Leak	Meets EPA Regulations Over-fill	Under-fill
1. VPLT-A NDE Environmental	.048	99.3%	0.3%	YES	YES
2. AES SYSTEM II **	.07	99 %	2 %	YES	NO
3. Leak Comp (Acutest)	.08	97 %	4 %	YES	NO
4. MCG-110	.10	97 %	9 %	YES	NO
5. EZY-CHECK (Horner)	.16	86 %	15 %	NO	NO
6. Liquid Manager (Kent)	.20	80 %	14 %	NO	NO
7. Petro-Tite	.21	79 %	21 %	NO	NO
8. S.M.A.R.T. Test	.59	58 %	32 %	NO	NO
9. Ainlay Tank Integrity Test	.78	50 %	31 %	NO	NO
10. Portable Small Leak Detection (Tank Test)	.81	63 %	32 %	NO	NO
11. Mooney Leak 12. Detection Tank Auditor	.83	47 %	30 %	NO	NO
	1.66	57 %	43 %	NO	NO
13. AES/BROCKMAN LDS	1.79	45 %	34 %	NO	NO

* Comparison of all methods based on: (1) Identical test protocol at EPA Edison, N.J. and (2) a single tank test for each of your tanks

** Newly developed system may not be available at all AES locations. See AES/Brockman (Method 13) for other AES system in use

NDE ENVIRONMENTAL CORP., 2909 OREGON CT., B1, TORRANCE, CA 90503 FAX 213-212-7230
FOR A COPY OF NDE'S RESULTS IN THE EPA EDISON TESTS OR TANK TESTING SERVICE - 213-212-5244 • 800-622-6044 (IN CALIF.)

Slight Increase for Lube Sales in '88

After a healthy 3.5% increase on the 1987 index, lubricant sales continued to move upward in 1988, although at a reduced pace, according to National Petroleum Refiners Assn. Sales were particularly strong in the industrial and grease areas, but off in automotive lubricants.

The NPRA report does not give volumes, only indexes and percentages which are based on the reports of participating companies. To preserve the confidentiality aspects of company sales, the reports are given to an independent auditor who converts them into indexes on an industry-wide basis.

The product categories, as defined by NPRA, are these: automotive oil—engine oils, automatic transmission fluids, gear oils and aviation oils; industrial oil—industrial engine oils, metalworking fluids, process oils and general industrial oils; grease—both automotive and industrial greases.

All finished lubricants are included in the NPRA totals. Not included, however, are exports and lube base stocks sold for further blending into finished lubricants.

NPRA stated that the data reflect the sales of the participating companies only. Sales of finished lubricants by other companies (commonly known as independent compound blenders) are not covered.

For its categories, NPRA used 55.5% of the sales for automotive oils, 42.3% for industrial oils, and 2.2% for greases.

Quarterly Indexes on Lubricant Sales

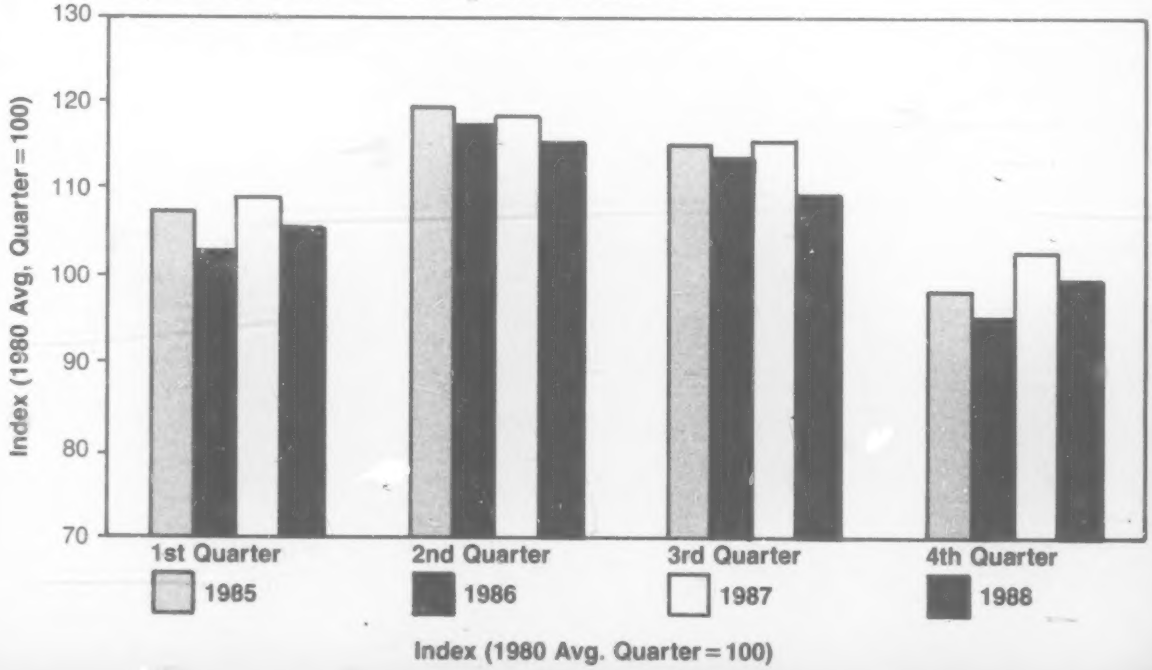
	Quarters				
	1	2	3	4	Full Year
1988	103.8	112.4	109.5	100.2	106.5
1987	101.2	108.5	108.6	101.3	104.9
1986	100.4	107.2	104.4	93.7	101.4
1985	99.5	107.7	103.5	95.4	101.5
1984	103.1	108.5	106.2	97.5	103.8
1983	89.3	99.1	98.0	92.5	94.7

Percentage Changes by Products and Quarters

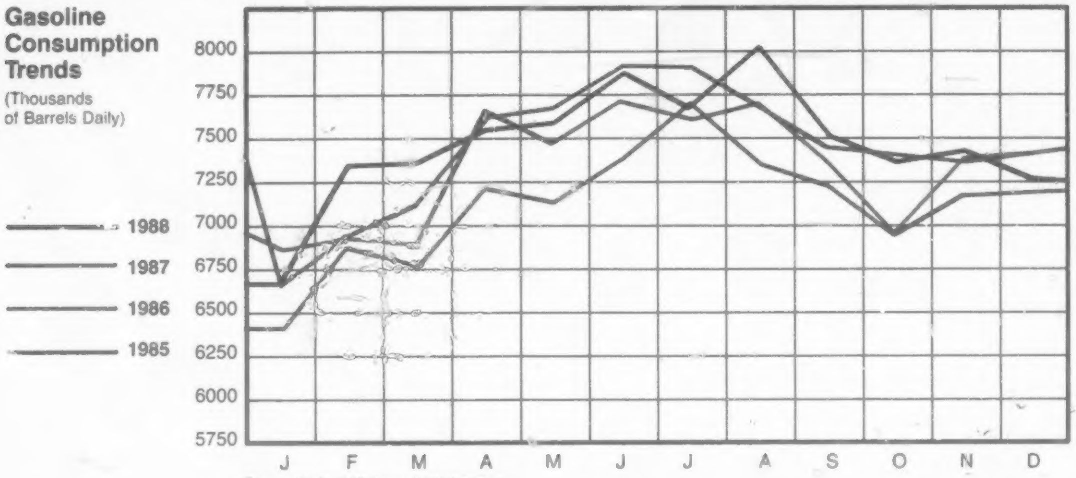
	Quarters				
1988 vs. 1987	1	2	3	4	Full Year
Automotive	−3.7%	−2.0%	−5.4%	−3.3%	−3.6%
Industrial	11.9	12.1	9.6	2.2	8.9
Grease	7.3	7.7	9.4	−6.5	4.2
Total	**2.6**	**3.6**	**0.8**	**−1.1**	**1.5**
1987 vs. 1986					
Automotive	6.1%	0.5%	1.8%	6.2%	3.4%
Industrial	−6.0	2.9	8.7	11.4	4.0
Grease	−9.6	−8.0	−13.5	−0.5	−8.0
Total	**0.7**	**1.2**	**4.0**	**8.1**	**3.6**
1986 vs. 1985					
Automotive	−4.1%	−3.1%	−1.3%	−1.9%	−2.6%
Industrial	8.8	4.4	4.0	−2.0	3.8
Grease	−1.6	−8.3	4.1	3.8	−0.6
Total	**0.9**	**−0.5**	**0.8**	**−1.8**	**−0.1**
1985 vs. 1984					
Automotive	−3.6%	3.5%	1.0%	−4.1%	−0.7%
Industrial	−3.1	−7.2	−7.4	1.3	−4.3
Grease	−4.5	−3.9	−6.7	−11.1	−6.6
Total	**−3.5**	**−0.8**	**−2.5**	**−2.2**	**−2.2**

N.B. For the index, the average quarter in 1980 - 100%; the base for quarterly indexes is 1980 full year sales for the reporting companies divided by four.
Source: National Petroleum Refiners Assn.

Automotive Lubricant Sales



Gasoline Consumption Trends
(Thousands of Barrels Daily)



Source: Federal Highway Administration

Gasoline Consumption by States—1988

(Includes highway and off-highway consumption)

	Rank		(Add 000 gal.) Gallonage (a)		% Chng.	(Add 000 gal.) Gasohol included (b)	
	1988	1987	1988	1987		1988	1987
Alabama	21	18	2,071,947	2,084,218	(0.6)	416,308	466,255
Alaska	50	50	246,038	242,578	1.4	215	381
Arizona	24	25	1,708,609	1,683,355	1.5	—	—
Arkansas	32	33	1,272,178	1,241,796	2.4	—	—
California	1	1	12,900,366	12,543,126	2.8	489,235	252,782
Colorado	27	27	1,584,881	1,565,700	1.2	50,707	21,400
Connecticut	28	28	1,499,633	1,484,832	1.0	—	—
Delaware	47	47	347,242	338,285	2.6	—	—
Dist. of Col.	—	—	185,712	181,371	2.4	402	328
Florida	3	4	6,202,351	5,914,706	4.9	73,985	139,616
Georgia	9	10	3,539,768	3,421,117	3.5	6,291	—
Hawaii	45	45	376,090	384,958	(2.3)	—	—
Idaho	41	41	478,952	462,202	3.6	45,012	24,207
Illinois	6	6	4,970,825	4,772,357	4.1	1,395,518	1,341,009
Indiana	14	13	2,681,251	2,745,535	(2.3)	603,867	685,814
Iowa	29	29	1,392,723	1,369,663	1.7	402,844	397,029
Kansas	31	32	1,326,645	1,265,811	4.8	120,763	139,831
Kentucky	23	23	1,907,775	1,855,460	2.8	798,731	757,390
Louisiana	22	20	2,064,779	2,062,830	0.1	79,635	252,975
Maine	38	38	658,179	606,596	8.5	—	—
Maryland	19	19	2,099,811	2,068,369	1.5	—	—
Massachusetts	16	16	2,542,571	2,491,662	2.0	—	—
Michigan	8	8	4,389,647	4,287,736	2.4	499,565	482,896
Minnesota	20	22	2,091,791	2,033,108	0.3	173,319	214,005
Mississippi	33	31	1,264,910	1,270,055	(0.4)	—	—
Missouri	13	14	2,780,023	2,754,512	0.9	—	21,912
Montana	42	42	453,073	440,858	2.8	310	2,451
Nebraska	37	36	801,447	776,125	3.3	258,073	241,984
Nevada	39	39	605,424	567,686	6.6	56,716	58,877
New Hampshire	40	40	527,610	514,167	2.6	—	—
New Jersey	11	9	3,491,849	3,586,002	(2.4)	—	—
New Mexico	36	35	828,818	821,713	0.9	147,656	99,310
New York	4	3	5,470,492	5,168,884	5.8	—	—
North Carolina	10	11	3,493,483	3,318,096	5.3	—	—
North Dakota	46	46	365,846	381,284	(4.0)	44,317	62,726
Ohio	5	5	5,013,798	5,012,222	—	985,586	891,110
Oklahoma	25	24	1,685,946	1,772,817	(4.9)	—	—
Oregon	30	30	1,362,482	1,312,919	3.8	—	—
Pennsylvania	7	7	4,696,540	4,590,386	2.3	—	—
Rhode Island	43	43	401,344	396,573	1.2	—	—
South Carolina	26	26	1,596,460	1,680,761	(5.3)	98,641	37,647
South Dakota	44	44	396,289	392,527	1.0	58,150	59,157
Tennessee	15	15	2,567,204	2,754,514	(6.8)	580,227	524,300
Texas	2	2	9,046,463	8,865,928	2.0	260,366	454,502
Utah	35	37	835,378	764,441	9.3	358	226
Vermont	49	49	291,291	282,232	3.2	—	—
Virginia	12	12	3,022,281	2,993,746	1.0	282,181	310,274
Washington	17	17	2,241,154	2,215,350	1.2	54,519	53,840
West Virginia	34	34	840,609	829,349	1.4	—	—
Wisconsin	18	21	2,117,182	2,046,604	3.4	20,175	10,238
Wyoming	48	48	318,867	313,409	1.7	62	50
Total U.S.	—	—	**114,870,672**	**113,930,531**	**0.8**	**7,988,111**	**8,004,442**

(a) These totals reflect the gross gal. of gasoline reported for tax purposes by wholesale distributors in each state. The data are taken from state taxation reports. The data include highway and non-highway use and losses.

(b) These totals show gross gal. of gasohol (ethanol blends) reported by the states. The data are obtained from state taxation reports. In states where gasohol is taxed at the same rate as gasoline, some gasohol gallonage may be commingled with gasoline data. All totals—gasoline and gasohol—are preliminary.

Source: Federal Highway Administration, Monthly Gasoline Reports, 1988.

Gasoline Consumption by Months—1987

This table, prepared by Federal Highway Administration, shows gross gallons of gasoline reported by wholesale distributors in each state. The data are taken from state taxation reports and may reflect time lags up to six weeks between the wholesale level and retail sales. The data include highway use, nonhighway use, and losses.

(Add 000 gal.)

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	159,663	150,881	171,345	177,497	177,125	185,757	189,551	174,105	172,130	177,631	164,809	183,724	2,084,218
Alaska	15,889	15,257	18,256	18,869	20,598	24,564	25,991	24,416	23,204	20,386	17,301	17,847	242,578
Arizona	143,555	140,091	147,090	141,430	143,836	136,498	136,102	139,772	140,636	138,708	134,637	141,000	1,683,355
Arkansas	56,537	124,315	98,447	100,027	110,772	116,466	112,336	104,432	109,326	36,984	161,710	110,444	1,241,796
California	993,650	915,495	1,057,104	1,070,821	1,051,673	1,067,111	1,085,727	1,065,650	1,037,168	1,072,756	1,031,067	1,094,373	12,543,135
Colorado	121,352	103,509	129,228	124,996	133,212	140,617	148,210	147,900	132,184	130,330	117,594	136,568	1,565,700
Connecticut	117,651	106,992	122,771	119,431	126,593	128,722	132,520	127,234	119,982	130,905	121,328	130,703	1,484,832
Delaware	19,982	27,579	27,202	26,310	46,918	14,536	32,319	32,146	27,392	28,889	26,610	28,402	338,285
Dist. of Col.	12,758	12,160	14,191	14,153	14,984	17,151	16,990	15,929	14,655	15,100	17,800	15,500	181,371
Florida	521,227	490,822	469,434	538,746	505,214	492,494	485,506	494,816	486,319	461,163	503,381	465,584	5,914,706
Georgia	253,617	262,663	279,248	274,993	314,095	293,931	305,693	286,498	284,938	295,840	274,610	294,991	3,421,117
Hawaii	30,484	27,605	32,846	31,789	47,254	31,149	30,858	31,508	33,440	31,267	26,163	30,595	384,958
Idaho	33,100	36,011	34,776	29,569	32,304	34,802	39,783	40,847	52,653	43,013	46,000	39,344	462,202
Illinois	396,287	334,139	393,060	417,114	389,997	414,180	432,654	395,711	407,887	448,197	351,815	391,316	4,772,357
Indiana	196,648	181,124	215,046	319,349	228,768	230,201	232,220	242,695	219,475	239,326	209,859	230,824	2,745,535
Iowa	103,557	88,608	111,781	115,629	115,619	124,832	126,294	112,828	126,497	122,732	104,342	116,944	1,369,663
Kansas	97,401	86,045	98,459	107,216	109,076	115,609	116,396	107,328	106,280	112,301	99,800	109,900	1,265,811
Kentucky	122,176	151,711	144,174	165,514	158,227	169,343	165,568	163,014	152,679	101,591	207,045	154,418	1,855,460
Louisiana	187,911	150,512	171,947	180,778	177,465	176,145	178,687	172,497	165,381	172,394	157,928	171,185	2,062,830
Maine	45,660	45,581	43,580	47,981	48,380	53,705	61,138	59,414	53,684	51,152	49,041	47,280	606,596
Maryland	155,174	152,322	175,267	170,134	186,225	173,850	184,752	174,910	170,706	175,441	170,003	179,585	2,068,369
Massachusetts	196,283	176,137	201,370	201,621	214,150	216,378	224,071	221,253	203,977	220,689	199,799	215,934	2,491,662
Michigan	332,759	306,228	340,025	345,155	367,880	381,222	370,467	415,590	338,080	386,301	353,091	350,938	4,287,736
Minnesota	151,843	137,921	157,904	159,778	162,103	203,297	193,977	188,117	159,806	170,547	178,775	169,040	2,033,108
Mississippi	94,524	85,717	101,271	81,172	119,067	122,633	122,071	118,478	107,536	100,253	99,036	118,297	1,270,055
Missouri	209,396	195,007	221,122	243,878	248,051	213,966	271,702	236,495	229,083	238,984	211,333	235,495	2,754,512
Montana	31,000	26,270	31,213	35,423	37,801	49,547	41,887	44,064	38,776	37,909	32,834	34,134	440,858
Nebraska	53,498	51,179	62,130	63,543	67,461	69,409	76,735	67,129	67,399	72,536	58,005	67,[illegible]01	776,125
Nevada	45,609	43,725	40,032	46,271	45,604	48,928	51,457	51,529	52,050	40,935	56,335	45,211	567,686
New Hampshire	41,652	39,012	38,798	38,[illegible]12	41,545	47,098	48,588	47,297	42,537	45,282	41,035	42,911	514,167
New Jersey	274,287	239,800	284,757	292,407	309,901	292,335	350,446	328,901	298,363	315,215	285,161	314,429	3,586,002
New Mexico	54,768	66,489	63,570	71,504	67,826	83,975	71,848	72,279	66,048	66,613	67,010	69,783	821,713
New York	595,125	353,008	514,684	448,336	735,181	552,642	532,054	521,535	420,352	481,504	500,021	514,442	6,168,884
North Carolina	24[illegible]922	222,684	275,367	276,589	285,693	285,365	302,236	279,244	301,112	290,607	264,440	292,937	3,318,096
North Dakota	19,183	31,131	16,030	37,337	44,061	39,687	34,457	37,244	32,573	31,732	28,657	29,192	381,284
Ohio	376,351	362,496	404,341	397,102	425,276	465,672	455,991	442,282	402,701	411,515	440,919	427,576	5,012,222
Oklahoma	139,703	135,493	159,310	156,761	198,407	140,201	149,549	143,264	138,616	142,915	130,626	137,972	1,772,817
Oregon	38,005	148,830	98,922	109,606	114,984	117,825	79,944	169,600	110,518	88,364	126,946	109,375	1,312,919
Pennsylvania	346,727	325,880	370,858	378,846	399,714	397,594	415,077	394,443	378,196	409,761	373,683	399,607	4,590,386
Rhode Island	31,477	31,477	31,477	33,258	33,258	33,258	34,011	34,011	34,011	33,445	33,445	33,445	396,573
South Carolina	139,116	125,250	120,711	203,660	148,934	165,760	131,979	128,924	125,554	134,679	123,967	132,227	1,680,761
South Dakota	26,011	22,974	28,111	32,961	33,829	39,779	40,145	37,971	34,406	35,943	27,546	32,851	392,527
Tennessee	228,527	189,592	230,285	231,555	248,893	225,369	253,743	232,315	231,245	236,651	233,346	214,993	2,754,514
Texas	696,949	659,229	742,058	771,614	681,821	760,168	810,933	769,426	740,526	745,083	716,026	772,095	8,865,928
Utah	61,228	50,570	61,848	62,667	64,740	69,079	73,075	70,258	65,256	70,931	48,380	66,409	764,441
Vermont	22,046	20,684	21,469	20,738	22,582	23,735	26,806	26,144	23,893	24,843	21,487	27,805	282,232
Virginia	250,566	202,851	221,990	252,693	243,379	259,492	321,059	250,876	242,398	255,880	227,495	265,067	2,993,746
Washington	53,606	214,194	190,072	118,960	315,045	177,204	217,519	203,545	183,278	183,385	176,567	181,975	2,215,350
West Virginia	53,635	58,597	70,234	65,746	68,825	76,825	75,825	70,687	76,804	64,638	67,005	81,528	829,349
Wisconsin	149,863	118,866	181,852	165,188	175,351	188,933	195,334	182,885	172,471	185,109	163,665	167,087	2,046,604
Wyoming	20,434	17,906	20,108	23,835	26,178	31,522	36,726	33,987	29,641	27,444	21,831	23,797	313,409
U.S. Total	**8,760,272**	**8,262,619**	**9,257,171**	**9,558,962**	**10,083,875**	**9,919,561**	**10,249,007**	**9,933,423**	**9,383,822**	**9,555,799**	**9,301,849**	**9,664,171**	**113,930,531**

Source: Federal Highway Administration, Monthly Gasoline Reports 1987

Gasoline Consumption by Months—1988

This table, based on Federal Highway Administration data, shows gross gallons of gasoline reported by wholesale distributors in each state. The data are taken from state taxation reports and may reflect time lags up to six weeks between the wholesale level and retail sales. The data include highway use, nonhighway use and losses.

(Add 000 gal.)

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	155,061	154,506	173,622	169,798	178,199	181,499	173,666	175,002	179,095	155,015	189,912	186,652	2,071,947
Alaska	15,987	16,683	17,863	17,975	19,322	27,594	27,259	24,963	19,371	23,892	17,555	17,664	246,038
Arizona	144,653	130,427	145,387	146,097	151,821	139,110	153,533	143,922	134,954	142,936	142,255	133,514	1,708,609
Arkansas	39,644	155,178	101,043	88,775	127,498	114,605	108,023	116,263	103,980	97,324	89,729	130,096	1,272,176
California	1,023,143	976,079	1,098,173	1,035,712	1,072,991	1,084,624	1,110,027	1,143,575	1,064,845	1,095,858	1,063,687	1,131,652	12,900,366
Colorado	120,689	113,857	127,742	128,927	128,719	140,668	148,955	148,546	128,477	140,293	130,144	128,134	1,584,881
Connecticut	118,104	116,066	128,028	121,520	130,554	129,172	126,504	133,731	123,411	129,400	125,788	117,175	1,499,633
Delaware	24,623	25,608	28,456	28,415	48,146	12,996	31,382	32,847	29,118	28,784	27,199	29,668	347,242
Dist. of Col.	14,600	14,068	16,565	15,258	16,028	15,994	15,686	16,081	15,044	15,712	15,377	16,377	186,686
Florida	581,498	427,284	531,819	555,610	522,258	503,008	480,035	497,821	501,142	518,292	518,292	518,292	6,202,351
Georgia	263,026	273,927	293,279	308,284	302,418	296,352	305,997	313,196	289,235	298,395	287,174	308,145	3,539,768
Hawaii	32,175	29,375	31,104	31,189	31,612	30,650	35,347	32,135	30,695	31,153	31,103	29,552	376,090
Idaho	34,140	34,363	35,800	34,111	41,698	36,682	37,780	47,497	47,287	45,721	43,735	40,138	478,952
Illinois	399,646	377,467	405,463	425,387	397,653	427,720	434,891	415,220	417,571	441,223	394,610	434,983	4,971,834
Indiana	206,177	195,302	223,871	216,495	232,568	232,585	278,830	243,651	219,006	230,436	221,213	231,117	2,681,251
Iowa	106,707	103,401	116,862	115,679	113,793	116,042	90,748	169,031	118,651	116,251	116,251	109,307	1,392,723
Kansas	100,259	113,150	111,395	107,658	111,398	121,145	111,887	114,247	107,564	109,066	108,884	109,992	1,326,645
Kentucky	152,429	138,864	154,639	169,276	170,082	162,181	173,588	165,024	146,386	155,710	152,228	167,368	1,907,775
Louisiana	155,174	158,304	177,914	171,264	179,631	163,772	177,049	197,131	169,740	163,955	168,942	181,903	2,064,779
Maine	51,163	45,840	49,340	47,068	55,044	55,184	61,247	69,070	59,881	58,340	54,247	51,755	658,179
Maryland	157,024	156,718	178,514	171,794	176,607	175,238	180,112	190,065	171,350	173,963	182,631	185,795	2,099,811
Massachusetts	202,127	190,783	210,261	204,375	216,322	220,334	217,431	229,382	208,058	212,350	206,049	225,099	2,542,571
Michigan	323,271	326,859	349,014	350,117	382,853	385,706	43,707	402,241	352,952	385,633	353,571	373,323	4,389,647
Minnesota	158,229	160,518	161,576	180,236	168,111	189,173	188,376	188,308	178,104	176,191	169,083	174,805	2,092,710
Mississippi	92,576	95,679	114,412	100,985	113,971	107,732	107,531	117,546	99,522	101,290	101,624	112,042	1,264,910
Missouri	212,354	198,142	240,380	237,141	234,477	240,693	253,933	237,942	278,815	233,678	226,370	236,098	2,780,023
Montana	29,322	29,669	34,609	34,791	37,243	43,623	47,942	46,338	38,034	36,883	36,883	34,038	453,073
Nebraska	56,918	57,063	65,267	63,569	67,851	78,920	69,606	73,060	67,810	70,782	66,509	64,092	448,745
Nevada	47,031	45,801	44,789	49,656	49,150	52,111	53,676	54,305	56,726	51,476	51,682	49,021	605,424
New Hampshire	41,400	39,969	41,517	40,369	43,392	47,098	47,877	50,911	44,289	44,608	41,245	44,935	527,610
New Jersey	250,306	312,988	251,300	312,517	287,682	353,257	276,269	318,427	323,413	271,785	239,548	294,307	3,491,849
New Mexico	61,033	66,089	69,938	65,710	71,265	69,104	73,006	77,990	67,559	68,525	66,573	72,026	828,818
New York	476,315	435,659	466,487	411,333	478,508	484,102	412,140	622,788	420,815	420,815	420,815	420,815	5,470,492
North Carolina	261,275	259,519	318,403	309,248	316,242	295,982	285,123	307,891	281,051	280,085	280,978	297,686	3,493,483
North Dakota	19,021	32,310	27,764	30,349	30,841	34,189	36,686	34,446	32,307	30,906	28,458	28,569	365,846
Ohio	396,332	358,859	414,493	411,952	443,007	439,656	432,824	455,525	414,837	412,263	413,066	414,975	5,013,789
Oklahoma	126,649	127,649	143,545	141,508	146,685	145,403	135,043	157,537	137,166	125,982	155,579	143,650	1,685,946
Oregon	24,416	171,151	95,791	75,400	127,328	125,221	161,097	130,518	115,382	114,545	108,093	113,540	1,362,482
Pennsylvania	357,052	348,604	386,144	386,680	413,211	407,874	412,856	421,556	386,165	402,472	398,458	375,467	4,696,540
Rhode Island	31,855	31,855	31,855	33,723	33,723	33,723	34,368	34,368	34,368	33,822	33,822	33,822	401,304
South Carolina	110,610	119,732	123,533	141,217	137,772	149,357	138,117	144,345	131,622	130,038	130,038	130,038	1,596,460
South Dakota	26,951	27,404	34,323	29,005	32,119	39,795	38,537	38,320	33,277	33,750	32,757	30,051	396,289
Tennessee	199,007	180,297	225,525	217,780	203,199	210,560	241,913	236,615	206,493	215,855	207,173	223,287	2,567,204
Texas	678,982	726,330	805,662	769,403	806,814	795,095	797,941	766,726	712,432	720,863	718,274	747,741	9,046,463
Utah	56,035	111,197	63,411	63,453	64,714	69,019	70,663	72,860	64,835	78,738	59,191	61,262	835,378
Vermont	23,009	22,047	22,975	21,127	23,502	25,146	26,824	28,504	25,379	25,821	22,457	22,040	291,291
Virginia	226,961	216,073	252,653	260,338	249,777	254,352	266,574	292,095	232,516	273,637	248,310	248,995	3,022,281
Washington	164,606	166,680	185,949	186,822	182,725	197,781	204,388	211,688	194,146	189,699	174,787	181,833	2,241,154
West Virginia	58,562	60,998	69,038	68,124	70,032	35,590	119,252	70,636	81,144	69,673	67,595	66,965	840,609
Wisconsin	155,916	163,349	133,160	168,376	212,230	191,101	187,429	192,499	177,969	181,457	173,203	179,693	2,117,182
Wyoming	20,696	20,792	22,667	23,272	27,409	32,898	35,553	33,660	29,197	27,490	23,243	21,990	318,867
U.S. Total	**8,785,669**	**8,907,532**	**9,553,430**	**9,493,918**	**9,880,195**	**9,922,136**	**9,989,258**	**10,438,045**	**9,453,226**	**9,592,085**	**9,343,788**	**9,517,752**	**114,874,460**

Source: Federal Highway Administration, Monthly Gasoline Reports 1988; table compiled by NPN with some estimates for late reporting states including D.C., Florida, Illinois, Minnesota, Montana, New York, Ohio, Oregon and South Carolina.

Gasoline Octanes, U.S. Service Stations

Year	Season	Leaded Regular(a)			Unleaded Regular(b)			Unleaded Premium(c)		
		Rsh.	Mtr.	(R + M)* 2	Rsh.	Mtr.	(R + M)* 2	Rsh.	Mtr.	(R + M)* 2
1988	Summer	93.3	83.7	88.5	92.2	82.7	87.5	97.0	86.8	91.9
1987-88	Winter	93.1	84.2	88.7	91.9	82.9	87.4	96.7	87.0	91.9
1987	Summer	93.3	84.0	88.7	92.0	82.7	87.4	96.8	86.8	91.8
1986-87	Winter	93.1	84.2	88.7	91.7	82.7	87.2	96.7	86.9	91.8
1986	Summer	93.3	84.3	88.8	92.0	82.7	87.3	96.7	86.7	91.7
1985-86	Winter	93.0	84.5	88.8	91.8	82.8	87.3	96.8	86.9	91.8
1985	Summer	92.8	84.8	88.8	91.9	82.8	87.4	96.5	86.8	91.7
1984-85	Winter	92.8	85.2	89.1	91.8	82.9	87.4	96.4	86.8	91.6
1984	Summer	92.9	85.0	89.0	91.6	82.9	87.3	96.5	86.9	91.7
1983-84	Winter	92.7	84.9	88.8	91.7	82.9	87.3	96.1	86.6	91.3
1983	Summer	93.1	84.9	89.0	92.0	82.9	87.5	96.4	86.5	91.4
1982-83	Winter	92.9	85.2	89.1	91.7	82.9	87.3	96.3	86.7	91.5
1982	Summer	93.0	85.0	89.0	91.9	82.8	87.3	96.8	86.6	91.7
1981-82	Winter	92.7	81.1	88.9	91.8	82.9	87.4	96.6	86.8	91.7
1981	Summer	92.8	85.1	89.0	91.9	83.0	87.4	96.3	86.2	91.3
1980-81	Winter	92.8	85.4	89.1	91.9	83.3	87.6	96.1	86.5	91.4

(a) Below 93 octane; (b) Below 90 octane; (c) 90 octane and above; *Antiknock index.
Source: Motor Gasolines, Summer 1988, National Institute for Petroleum and Energy Research, Bartlesville, Okla., published March 1989.

Regional Octane Averages—Summer 1988

Regions(e)	Leaded Regular(a)			Unleaded Regular(b)			Unleaded Premium(c)			Alcohol-blended Premium(d)		
	Rsh.	Mtr.	R + M* 2	Rsh.	Mtr.	R + M* 2	Rsh.	Mtr.	R + M* 2	Rsh.	Mtr.	R + M* 2
Northeast	94.6	83.7	89.2	92.8	82.7	87.8	97.8	86.7	92.3	NS	NS	NS
Mid-Atlantic Coast	94.2	84.1	89.2	92.8	82.7	87.8	97.6	86.9	92.3	97.7	86.8	92.3
Southeast	94.0	84.1	89.1	92.3	82.5	87.4	97.3	86.8	92.1	98.2	86.5	92.4
Florida	93.9	84.5	89.2	92.9	82.9	87.9	98.4	87.4	92.9	NS	NS	NS
North Central	94.1	84.6	89.4	92.3	82.9	87.6	96.5	87.9	92.2	96.7	86.4	91.6
Ohio Valley	93.9	84.5	89.2	92.2	82.8	87.5	96.3	86.9	91.9	97.4	87.2	92.3
Central and Upper Plains	93.1	83.8	88.5	92.0	82.7	87.4	96.0	88.6	91.3	96.2	85.6	90.9
Oklahoma and East Texas	94.1	83.4	88.8	92.3	82.4	87.4	97.0	86.9	92.0	97.1	86.3	91.7
North Mountain States	92.0	82.6	87.3	90.7	82.3	86.5	95.4	86.3	90.9	96.8	86.9	91.9
Central Mountain States	91.2	82.3	86.8	91.3	82.1	86.7	NS	NS	NS	NS	NS	NS
New Mexico and West Texas	92.1	83.3	87.7	92.2	83.0	87.6	95.2	85.9	90.5	NS	NS	NS
West Southwest	92.7	83.6	88.2	92.2	82.9	87.5	97.4	86.6	92.1	96.2	85.6	90.9
Pacific Northwest	92.6	83.7	88.2	92.1	83.1	87.6	97.2	87.2	92.2	NS	NS	NS
North California and North Nevada	93.4	83.0	88.2	92.8	83.0	87.9	97.6	86.4	92.1	97.2	86.1	91.7
South California	93.0	83.6	88.3	92.4	83.0	87.7	97.4	86.0	91.7	96.4	84.3	90.4
Average												
Summer 1988	**93.3**	**83.7**	**88.5**	**92.2**	**82.7**	**87.5**	**97.0**	**86.8**	**91.9**	**97.0**	**86.2**	**91.6**
Summer 1987	**93.3**	**84.0**	**88.7**	**92.0**	**82.7**	**87.4**	**96.8**	**86.8**	**91.8**	**97.1**	**86.5**	**91.9**

(a) Below 93 octane; (b) Below 90 octane; (c) 90 octane and above; (d) 90 octane and above, blended; (e) Regions were redefined and reduced in number by the API Products Committee in 1988; *Antiknock index; NS – No samples.
Source: Motor Gasolines, Summer 1988, National Institute for Petroleum and Energy Research, Bartlesville, Okla., published March 1989.

Gasoline Consumption by Rank—1988

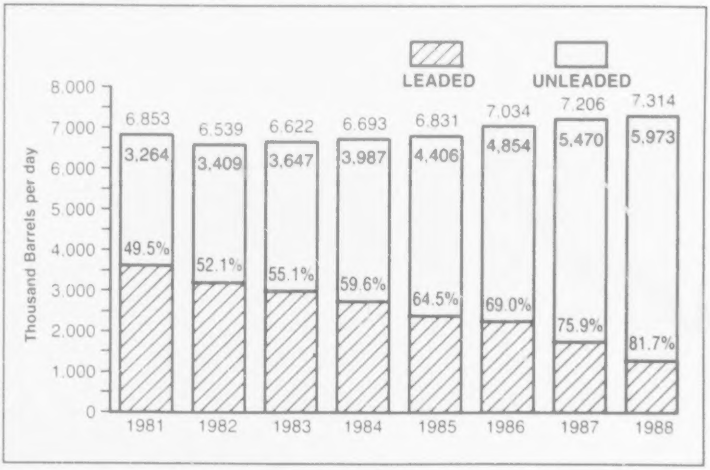
State	1988 Rank	1987 Rank	Gallonage (Add 000) 1988 (a)	State	1988 Rank	1987 Rank	Gallonage (Add 000) 1988 (a)
California	1	1	12,900,366	Connecticut	28	28	1,499,633
Texas	2	2	9,046,463	Iowa	29	29	1,392,723
Florida	3	4	6,202,351	Oregon	30	30	1,362,482
New York	4	3	5,470,492	Kansas	31	32	1,326,645
Ohio	5	5	5,013,780	Arkansas	32	33	1,272,176
Illinois	6	6	4,971,834	Mississippi	33	31	1,264,910
Pennsylvania	7	7	4,696,540	West Virginia	34	34	840,609
Michigan	8	8	4,389,647	Utah	35	37	835,378
Georgia	9	10	3,539,768	New Mexico	36	35	828,818
North Carolina	10	11	3,493,483	Nebraska	37	36	801,447
New Jersey	11	9	3,491,849	Maine	38	38	658,179
Virginia	12	12	3,022,281	Nevada	39	39	605,424
Missouri	13	14	2,780,023	New Hampshire	40	40	527,610
Indiana	14	13	2,681,251	Idaho	41	41	478,952
Tennessee	15	15	2,567,204	Montana	42	42	448,745
Massachusetts	16	16	2,542,571	Rhode Island	43	43	401,304
Washington	17	17	2,241,154	South Dakota	44	44	396,289
Wisconsin	18	21	2,117,182	Hawaii	45	45	376,090
Maryland	19	19	2,099,811	North Dakota	46	46	365,846
Minnesota	20	22	2,092,710	Delaware	47	47	347,242
Alabama	21	18	2,071,947	Wyoming	48	48	318,867
Louisiana	22	20	2,064,779	Vermont	49	49	291,291
Kentucky	23	23	1,907,775	Alaska	50	50	246,038
Arizona	24	25	1,708,609	Dist. of Col.	51	51	186,686
Oklahoma	25	24	1,685,946				
South Carolina	26	26	1,596,460				
Colorado	27	27	1,548,881				

(a) Preliminary with up to nine state totals estimated by NPN based on Federal Highway Administration monthly reports, 1988.

Source: Federal Highway Administration, Monthly Gasoline Reports—1988

Unleaded Gasolines Take Over

Unleaded vs. Leaded Motor Gasoline, 1981-1988



Source: Energy Information Administration, Petroleum Supply Monthly, February 1989

There was no letup in 1988 in the way unleaded gasoline continued to overwhelm the marketplaces.

Unleaded gasoline sales rose last year, hitting an all-time high average of 5,973,000-b/d. This was 81.7% of total gasoline sales, meaning that unleaded gasoline demand averaged four out of every five gallons sold last year.

Unleaded gasoline sales have been rising steadily through the years, exerting downward pressure on leaded grades. It is anticipated that by the early 1990s, leaded gasoline will be virtually a specialty product hard to find in most parts of the U.S.

An interesting aspect of the 1988 picture was that total gasoline sales averaged 7,314,000-b/d. This is the second highest annual average in history, being exceeded only by the 1978 peak of 7,412,000-b/d. Barring any freak changes in national consumption patterns, this old 1978 record undoubtedly will be surpassed this year.

It is true, of course, that pump sales averaged more than 7,412,000-b/d in the summer driving months in 1988, but that was for only a limited period.

Unleaded gasoline was mandated by the federal government in 1978. When it first came on the market it was lucky to capture one out of every four gallons sold. By 1981, unleaded sales were about half the market, and by 1985 unleaded gasoline had a two-to-one edge over leaded gasoline. The gap grew wider in 1988, with unleaded gasoline now accounting for four out of every five gallons sold in American marketplaces.

These changes are being reflected in the retail markets. Many oil companies have already discontinued leaded sales and have added a mid-grade unleaded so that consumers will continue to have their choice of motor fuels.

Gasohol Consumption by States—1987

This table, prepared by Federal Highway Administration, shows gross gallons of gasohol (ethanol blends) reported by the various states. The data are obtained from the state taxation reports. In states where gasohol is taxed at the same rate as gasoline, some gasohol gallonage may be commingled with gasoline data. At any rate, this is a preliminary report and upward revisions may be expected on the basis of later data. This report indicates there was a small increase in gasohol sales in 1987.

(Add 000 gal.)

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	29,193	34,495	44,984	50,800	51,156	44,372	35,494	33,218	32,097	34,559	34,780	41,107	466,255
Alaska	27	14	22	20	20	31	23	65	46	41	48	24	381
Arizona	—	—	—	—	—	—	—	—	—	—	—	—	—
Arkansas	—	—	—	—	—	—	—	—	—	—	—	—	—
California	22,786	21,934	23,176	25,296	19,949	19,276	16,536	19,333	18,421	18,253	21,619	26,123	252,702
Colorado	—	—	—	—	—	—	5,866	3,064	3,494	2,762	3,048	3,166	21,400
Connecticut	—	—	—	—	—	—	—	—	—	—	—	—	—
Delaware	—	—	—	—	—	—	—	—	—	—	—	—	—
Dist. of Col.	9	11	10	43	27	43	38	42	45	18	25	17	328
Florida	14,514	11,859	13,025	15,353	15,426	15,323	14,192	10,018	7,941	7,205	7,668	7,092	139,616
Georgia	—	—	—	—	—	—	—	—	—	—	—	—	—
Hawaii	—	—	—	—	—	—	—	—	—	—	—	—	—
Idaho	803	1,128	1,326	1,225	1,310	2,506	1,549	2,357	4,034	2,260	3,229	2,480	24,207
Illinois	94,699	106,704	108,614	104,815	109,171	115,857	116,685	111,363	105,081	145,160	105,375	117,485	1,341,009
Indiana	59,390	53,707	59,390	60,048	60,702	61,621	58,976	58,182	51,521	56,397	49,526	56,354	685,814
Iowa	30,902	26,891	34,508	34,076	33,696	35,826	38,105	30,051	35,153	32,185	31,638	33,998	397,029
Kansas	13,920	12,620	14,132	16,678	17,737	14,082	8,879	7,772	7,359	8,963	8,057	9,632	139,831
Kentucky	65,391	53,606	53,271	71,906	69,832	65,279	83,861	55,136	62,689	63,949	58,199	54,271	757,390
Louisiana	25,930	33,900	38,948	36,997	2,383	18,113	17,969	18,102	17,717	14,515	9,426	18,975	252,975
Maine	—	—	—	—	—	—	—	—	—	—	—	—	—
Maryland	—	—	—	—	—	—	—	—	—	—	—	—	—
Massachusetts	—	—	—	—	—	—	—	—	—	—	—	—	—
Michigan	32,173	34,206	38,880	38,578	42,345	42,481	43,324	42,380	40,293	44,257	39,959	44,018	482,896
Minnesota	19,256	17,647	20,532	20,377	22,755	20,714	17,758	16,490	14,620	14,191	15,648	14,017	214,005
Mississippi	—	—	—	—	—	—	—	—	—	—	—	—	—
Missouri	1,826	1,826	1,826	1,826	1,826	1,826	1,826	1,826	1,826	1,826	1,826	1,826	21,912
Montana	357	74	350	101	72	167	268	277	181	153	130	321	2,451
Nebraska	16,890	17,317	20,401	19,350	21,736	21,322	21,953	20,524	20,081	21,676	18,622	22,112	241,984
Nevada	4,765	7,330	4,612	4,716	6,793	4,427	5,346	2,812	4,265	2,463	7,520	3,828	58,877
New Hampshire	—	—	—	—	—	—	—	—	—	—	—	—	—
New Jersey	—	—	—	—	—	—	—	—	—	—	—	—	—
New Mexico	4,986	4,810	3,716	9,716	5,762	18,949	7,921	8,856	6,704	10,109	8,167	9,614	99,310
New York	—	—	—	—	—	—	—	—	—	—	—	—	—
North Carolina	—	—	—	—	—	—	—	—	—	—	—	—	—
North Dakota	6,243	9,491	4,326	9,902	9,030	5,126	3,921	2,951	2,749	3,006	2,755	3,226	62,726
Ohio	63,877	64,753	80,446	72,344	67,323	89,313	75,330	72,706	70,737	75,811	78,526	79,944	891,110
Oklahoma	—	—	—	—	—	—	—	—	—	—	—	—	—
Oregon	—	—	—	—	—	—	—	—	—	—	—	—	—
Pennsylvania	—	—	—	—	—	—	—	—	—	—	—	—	—
Rhode Island	—	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	1,620	4,071	1,681	4,556	672	3,932	130	4,455	—	7,222	4,586	4,722	37,647
South Dakota	4,638	4,346	5,238	5,423	5,472	5,225	5,100	4,491	4,516	4,965	4,663	5,080	59,157
Tennessee	27,380	46,177	35,568	49,880	49,170	43,195	53,672	38,304	39,415	50,079	48,339	43,121	524,300
Texas	20,540	43,975	29,401	55,742	57,392	49,969	37,273	30,053	30,576	34,470	34,147	30,964	454,502
Utah	17	189	20	—	—	—	—	—	—	—	—	—	226
Vermont	—	—	—	—	—	—	—	—	—	—	—	—	—
Virginia	24,625	23,451	27,381	27,828	27,932	27,782	30,706	25,852	23,201	25,019	20,423	26,074	310,274
Washington	506	7,384	743	4,628	9,387	1,326	7,826	4,540	4,083	3,903	4,807	4,707	53,840
West Virginia	—	—	—	—	—	—	—	—	—	—	—	—	—
Wisconsin	870	789	968	766	1,334	1,152	736	1,053	853	453	685	579	10,238
Wyoming	5	2	3	6	5	4	5	5	5	2	4	4	50
U.S. Total	**588,138**	**644,709**	**667,498**	**742,996**	**710,415**	**729,239**	**711,208**	**626,703**	**609,703**	**685,872**	**623,445**	**664,811**	**8,004,442**

Source: Federal Highway Administration, Monthly Gasoline Reports 1987

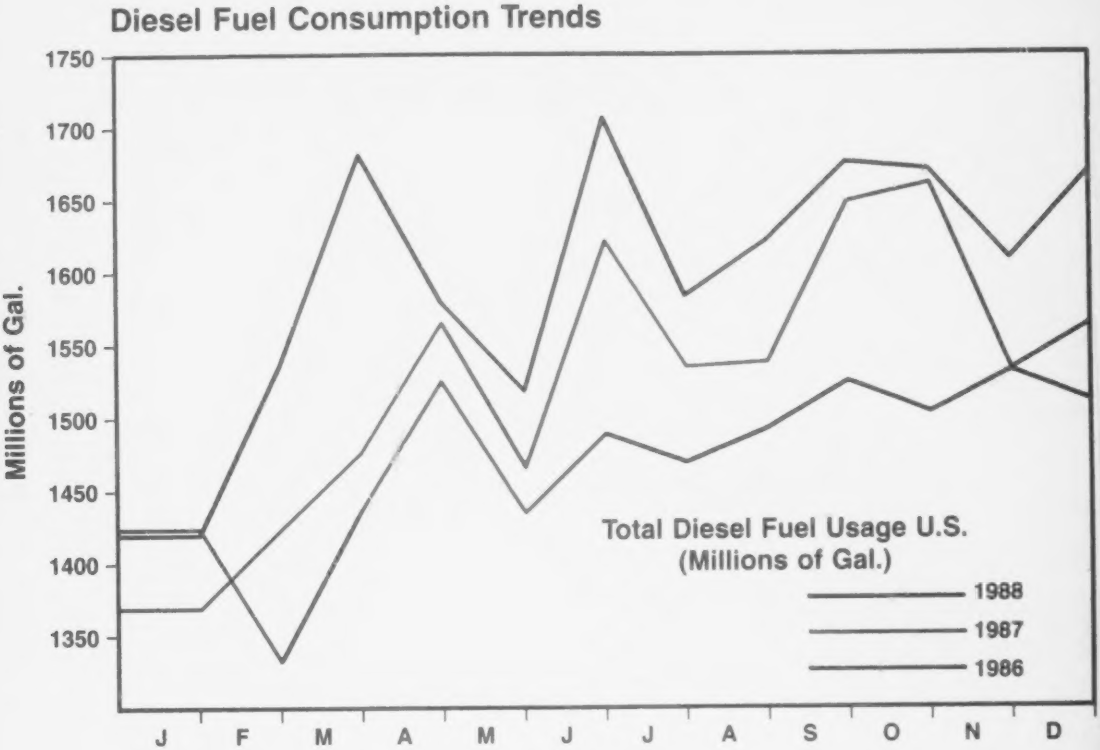
Gasohol Consumption by States—1988

This table, prepared by Federal Highway Administration, shows gross gallons of gasohol (ethanol blends) reported by the various states. The data are obtained from the state taxation reports. In states where gasohol is taxed at the same rate as gasoline, some gasohol gallonage may be commingled with gasoline data. At any rate, this is a preliminary report and upward revisions may be expected on the basis of later data. This report indicates there was a small increase in gasohol sales in 1988.

(Add 000 gal.)

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	34.622	36.380	42.169	40.039	37.122	35.982	34.306	31.503	35.007	27.013	31.047	31.118	416.308
Alaska	33	44	28	24	15	16	10	10	9	10	6	10	215
Arizona	—	—	—	—	—	—	—	—	—	—	—	—	—
Arkansas	—	—	—	—	—	—	—	—	—	—	—	—	—
California	24,118	35,759	38.888	45,443	43,011	42,709	39,689	45,933	47,005	50,524	38,098	38,058	489,235
Colorado	4,537	4,689	5,781	6,743	5,659	3,978	1,627	1,772	1,230	3,067	5,642	5,982	50,707
Connecticut	—	—	—	—	—	—	—	—	—	—	—	—	—
Delaware	—	—	—	—	—	—	—	—	—	—	—	—	—
Dist. of Col.	29	35	53	52	19	26	13	63	46	37	37	38	402
Florida	7.552	5.714	4.914	5.453	5.704	7.142	6.162	6.424	6.521	6.133	6.133	6.133	73.985
Georgia	—	—	—	—	—	—	—	—	752	1.847	1.750	1.942	6.291
Hawaii	—	—	—	—	—	—	—	—	—	—	—	—	—
Idaho	2,665	2,893	2,456	2,983	3,600	3,001	3,293	3,745	4,025	4,831	5,692	5,828	45,012
Illinois	104,826	104,126	119,114	114,903	115,060	116,047	139,977	116,293	116,293	116,293	116,293	116,293	1,395,518
Indiana	42.393	50,624	42,872	19,776	15,047	108,908	19,006	17,699	136,575	50,322	50,322	50,332	603,867
Iowa	33,622	31,987	33.569	34,628	32,880	30,373	23,223	53,605	31,971	31,716	33,385	31,885	402,844
Kansas	8.364	7.900	8.777	9.624	9.969	10.069	10.146	10.512	10.054	11.202	11.303	12.843	120.763
Kentucky	75.132	54.936	61.704	50.367	37.475	56.108	130.788	66.644	66.644	66.644	66.644	66.644	798.731
Louisiana	10.620	7.774	4.972	5.779	4.729	6.167	4.684	19.960	3.512	3.034	4.454	3.950	79.635
Maine	—	—	—	—	—	—	—	—	—	—	—	—	—
Maryland	—	—	—	—	—	—	—	—	—	—	—	—	—
Massachusetts	—	—	—	—	—	—	—	—	—	—	—	—	—
Michigan	37,379	38,795	41,132	40,731	42,650	44,342	42,361	44,143	41,302	42,968	41,943	41,819	499,565
Minnesota	14,810	13,210	12,834	16,076	14,002	15,248	14,245	15,121	14,443	14.443	14,443	14,443	173,319
Mississippi	—	—	—	—	—	—	—	—	—	—	—	—	—
Missouri	—	—	—	—	—	—	—	—	—	—	—	—	—
Montana	25	110	33	3	40	—	4	13	4	26	26	26	310
Nebraska	19.572	19.360	21.048	19.595	22.438	23.733	21.680	22.518	21.294	22.876	21.916	22.043	258.073
Nevada	4,229	3,950	4,214	4,619	4,356	3,411	5.508	7,361	3,453	6,497	6,447	2,671	56,716
New Hampshire	—	—	—	—	—	—	—	—	—	—	—	—	—
New Jersey	—	—	—	—	—	—	—	—	—	—	—	—	—
New Mexico	10.066	10.014	10.985	11,576	11,723	11,574	12,552	13,346	11,366	13,973	15,109	15,372	147,656
New York	—	—	—	—	—	—	—	—	—	—	—	—	—
North Carolina	—	—	—	—	—	—	—	—	—	—	—	—	—
North Dakota	2.171	4.062	3.083	4.511	4.023	4.245	4.293	3.896	3.569	3.707	3.283	3.474	44.317
Ohio	119.612	73.300	80.914	78.937	81.398	78.924	81.710	78.705	78.332	77.501	73.320	82.933	985.586
Oklahoma	—	—	—	—	—	—	—	—	—	—	—	—	—
Oregon	—	—	—	—	—	—	—	—	—	—	—	—	—
Pennsylvania	—	—	—	—	—	—	—	—	—	—	—	—	—
Rhode Island	—	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	8.449	6.371	7.403	9.774	7.039	13.394	10.977	3.922	7.402	8.303	8.303	8.303	98.641
South Dakota	4.210	4.559	4.990	4.866	5.135	5.305	4.930	4.971	4.487	4.748	4.885	5.064	58.150
Tennessee	43.232	51.800	47.117	33.362	37.100	53.705	52.201	43.716	47.721	47.227	65.516	57.530	580.227
Texas	30.644	37.041	46.813	47.922	43.691	45.571	1.524	1.087	933	1.001	1.307	2.832	260.366
Utah	62	—	30	10	—	—	—	39	54	51	60	52	358
Vermont	—	—	—	—	—	—	—	—	—	—	—	—	—
Virginia	24,902	21.332	24,785	23,832	22,613	24,559	23,950	24,666	22,038	24,351	22.113	23,040	282,181
Washington	4.056	3.618	4.527	5.278	4.076	4.474	4,680	4.586	4.662	4,835	5,020	4,707	54,519
West Virginia	—	—	—	—	—	—	—	—	—	—	—	—	—
Wisconsin	974	1.021	1.940	903	652	5.262	1.024	319	1.212	2.282	1.467	3.119	20.175
Wyoming	5	4	5	5	5	7	7	5	5	5	5	4	62
U.S. Total	**672.911**	**631,408**	**677.150**	**637.814**	**611.231**	**754.280**	**694.570**	**624.928**	**721.921**	**647.467**	**655.953**	**658.478**	**7.988.111**

Source: Federal Highway Administration, Monthly Gasoline Reports 1988


Diesel Fuel Consumption Trends

Diesel Fuel Consumption by States—1988

	Rank		Gallonage		%
	1988	1987	1988(a)	1987	Change
Alabama	18	16	443,855	409,826	8.3%
Alaska	44	44	84,306	62,398	35.1
Arizona	28	30	303,840	272,404	11.5
Arkansas	22	22	351,798	328,659	7.0
California	1	1	1,782,726	1,730,685	3.0
Colorado	34	34	191,352	186,537	2.6
Connecticut	32	32	215,324	190,535	13.0
Delaware	46	45	56,125	59,494	(5.7)
Dist. of Col.	—	—	23,657	22,096	7.1
Florida	6	5	835,231	784,469	6.5
Georgia	5	6	841,982	782,834	7.6
Hawaii	49	49	22,999	21,346	7.7
Idaho	41	41	100,908	104,170	(3.2)
Illinois	7	7	781,999	739,434	5.8
Indiana	8	8	739,465	707,477	4.5
Iowa	23	23	340,061	317,818	7.0
Kansas	26	17	321,799	396,487	(18.8)
Kentucky	15	20	508,928	357,335	42.4
Louisiana	20	21	387,981	346,677	11.9
Maine	35	36	177,600	159,320	11.5
Maryland	29	28	303,374	293,067	3.5
Massachusetts	30	29	294,131	284,134	3.5
Michigan	13	11	532,806	518,342	3.0
Minnesota	24	25	331,719	317,188	4.6
Mississippi	25	27	322,838	303,056	6.5
Missouri	12	14	542,311	493,178	10.0
Montana	39	40	123,401	108,341	13.9
Nebraska	31	31	219,806	203,619	7.9
Nevada	40	39	119,540	120,910	(1.1)
New Hampshire	45	47	58,798	55,665	5.6
New Jersey	16	15	480,544	449,165	7.0
New Mexico	33	33	207,366	189,735	9.3
New York	14	13	523,044	505,774	3.4
North Carolina	9	9	720,181	587,480	22.6
North Dakota	43	43	92,209	91,005	1.3
Ohio	4	4	868,205	828,424	4.8
Oklahoma	19	19	398,037	388,470	2.3
Oregon	(b)	(b)	(b)	272,388	—
Pennsylvania	3	3	943,078	880,263	7.1
Rhode Island	48	46	44,304	56,217	(21.2)
South Carolina	27	26	311,614	286,166	8.9
South Dakota	42	42	95,672	92,769	3.1
Tennessee	11	10	581,701	565,029	3.0
Texas	2	2	1,312,739	1,373,544	(4.4)
Utah	37	37	172,441	142,663	27.5
Vermont	47	48	54,612	51,242	6.6
Virginia	10	12	593,702	508,085	16.9
Washington	21	24	355,356	314,468	13.0
West Virginia	38	38	162,261	152,395	11.9
Wisconsin	17	18	446,507	389,056	14.8
Wyoming	36	35	174,265	184,259	(5.4)
Total U.S.			**19,817,199**	**18,986,098**	**4.4**

(a) Preliminary and includes some estimates by NPN for late-reporting states; (b) Oregon discontinued collecting diesel data after 1987.
Source: Federal Highway Administration, Monthly Gasoline Reports 1988.

Highway Diesel Sales by States — 1987

Diesel Sales for motor vehicles—passenger cars, trucks and buses—climbed another 1.4% in 1987, continuing the upward swing of recent years. On-highway consumption amounted to 18.1-billion gal., compared with 17.9-billion gal. in 1986.

Off-highway sales—primarily for construction equipment and farms but occasionally including utilities for power generation—rose 4.4% in 1987, continuing the impressive increase of 1986.

(Add 000 gal.)

	On-Highway			Off-Highway		
	1987	1986	% Change	1987	1986	% Change
PAD District 1						
New England States						
Connecticut	188,172	179,230	4.9%	11,894	7,011	69.6%
Maine	157,344	140,312	12.1	13,662	11,240	21.5
Massachusetts	282,982	267,065	6.0	14,873	12,677	17.3
New Hampshire	54,975	50,895	8.0	9,256	7,638	21.2
Rhode Island	55,520	44,667	21.3	1,085	3,380	(67.9)
Vermont	50,607	40,202	25.9	4,544	6,768	(32.9)
Central Atlantic States						
Delaware	58,756	52,855	11.2	2,948	2,395	23.1
District of Columbia	21,822	21,413	2.0	165	222	(25.7)
Maryland	289,433	274,995	5.3	17,940	25,368	(29.3)
New Jersey	446,805	450,858	(.9)	22,854	36,951	(38.2)
New York	633,543	614,646	3.0	41,920	25,895	61.9
Pennsylvania	868,650	810,753	7.0	38,908	61,634	(36.9)
Lower Atlantic States						
Florida	654,444	680,975	(3.9)	71,958	63,481	13.3
Georgia	772,080	710,528	8.7	33,482	36,866	(9.2)
North Carolina	580,195	548,890	5.7	32,484	30,968	4.9
South Carolina	282,618	293,541	(3.7)	16,671	22,880	(27.1)
Virginia	501,785	486,608	3.1	28,440	36,231	(21.5)
West Virginia	150,200	132,361	13.5	20,510	29,360	(30.1)
Total	6,049,931	5,782,794	4.6	383,592	420,965	(8.9)
PAD District 2						
Illinois	724,982	695,139	4.3	59,567	55,702	6.9
Indiana	698,704	681,413	2.5	13,395	14,190	(5.6)
Iowa	322,226	288,303	11.8	13,173	11,446	15.0
Kansas	351,717	253,237	38.9	21,062	24,690	(14.7)
Kentucky	356,046	368,109	(3.3)	21,543	28,712	(25.0)
Michigan	511,402	478,218	6.9	45,303	35,543	27.0
Minnesota	313,255	288,389	8.6	17,221	22,657	(31.6)
Missouri	487,063	472,721	3.0	33,224	14,865	123.5
Nebraska	201,094	188,890	6.5	17,881	17,673	1.2
North Dakota	88,184	87,289	1.0	5,562	7,299	23.8
Ohio	751,521	797,685	(5.8)	28,130	37,379	(24.7)
Oklahoma	383,820	368,795	4.1	29,677	41,613	(28.7)
South Dakota	89,852	90,150	(.3)	11,838	9,497	24.6
Tennessee	562,038	527,263	6.6	63,348	67,809	(6.6)
Wisconsin	384,232	364,055	5.5	22,425	26,044	13.9
Total	6,226,136	5,949,656	4.6	403,348	415,120	(2.8)
PAD District 3						
Alabama	404,744	368,011	10.0	49,742	28,734	73.1
Arkansas	322,040	295,187	9.1	31,618	22,615	39.8
Louisiana	344,059	349,332	1.5	66,459	37,313	78.1
Mississippi	289,999	287,753	.8	41,235	20,194	104.2
New Mexico	189,499	182,996	3.6	22,965	24,148	(4.9)
Texas	1,319,054	1,437,192	(8.2)	232,075	205,796	12.8
Total	2,869,395	2,920,471	(1.7)	444,094	338,779	31.1
PAD District 4						
Colorado	184,224	186,918	(1.4)	28,248	46,606	(39.4)
Idaho	102,878	98,003	5.0	18,379	11,332	62.2
Montana	106,998	105,048	1.9	12,565	13,791	(8.9)
Utah	104,894	139,467	(24.8)	16,630	25,122	(33.8)
Wyoming	181,974	102,219	7.8	22,860	22,094	3.5
Total	716,968	613,655	16.8	98,682	118,945	(17.0)
PAD District 5						
Alaska	61,624	97,190	(36.6)	25,802	15,828	63.0
Arizona	269,026	280,167	(4.0)	35,506	50,053	(29.0)
California	1,256,749	1,570,607	(20.0)	201,486	173,248	16.3
Hawaii	20,219	19,618	3.1	4,288	5,075	(15.5)
Nevada	119,411	97,170	22.9	25,818	31,625	(18.4)
Oregon	269,015	244,854	9.9	50,498	33,817	49.3
Washington	314,460	332,326	(5.4)	58,938	55,909	5.4
Total	2,310,504	2,641,932	(12.5)	402,390	356,556	12.9
U.S. Total	18,172,934	17,926,508	1.4%	1,732,106	1,659,365	4.4%

Source: Energy Information Administration, Petroleum Marketing Monthly, June 1988.

Diesel Fuel Consumption by States—1987

The table below, prepared by the Federal Highway Administration, shows gross gallons of special fuels, but this is primarily diesel fuel. Included are small amounts of liquefied petroleum gases. In most cases, FHA says, the data reflect retail sales. This is a preliminary report for 1987 and includes some estimates by NPN to offset late reporting by some states.

(Add 000 gal.)

State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	36,158	32,112	28,031	35,432	36,189	28,867	45,579	29,000	34,875	40,775	32,278	30,530	409,826
Alaska	1,885	449	3,173	10,114	7,491	5,011	6,018	11,985	9,971	3,386	3,897	11,054	62,398
Arizona	19,452	16,626	20,200	23,444	23,883	23,962	28,907	21,720	23,370	23,791	22,972	24,077	272,404
Arkansas	19,113	33,293	27,554	24,635	25,725	31,010	28,638	26,927	29,480	11,307	42,898	28,079	328,659
California	132,305	132,305	132,305	139,512	139,512	139,512	152,359	152,359	152,359	152,719	152,719	152,719	1,730,685
Colorado	11,178	15,883	15,341	14,633	14,396	19,148	15,844	14,814	17,652	16,225	13,958	17,465	186,537
Connecticut	15,047	13,561	13,607	15,968	15,707	16,883	16,662	15,980	16,939	16,224	16,332	17,625	190,535
Delaware	4,304	5,791	3,303	5,376	5,589	6,464	6,559	5,481	3,224	4,664	5,720	3,019	59,494
Dist. of Col.	1,563	1,858	1,872	1,994	1,735	2,137	1,922	1,849	1,766	2,000	1,600	1,800	22,096
Florida	65,242	64,643	66,054	70,073	69,005	66,740	67,902	60,661	63,120	61,301	67,380	62,348	784,469
Georgia	59,159	58,049	63,626	70,136	65,124	73,097	70,855	53,243	71,720	70,205	65,395	62,225	782,834
Hawaii	2,240	1,361	1,650	2,295	1,615	1,634	2,027	1,827	2,090	2,148	1,342	1,117	21,346
Idaho	12,405	12,696	1,148	12,630	1,075	10,747	12,366	11,788	1,492	11,672	10,158	5,993	104,170
Illinois	62,163	51,714	60,833	64,555	60,359	64,101	66,961	61,243	63,127	69,366	54,449	60,563	739,434
Indiana	57,065	54,189	64,503	68,263	57,989	51,581	56,423	78,137	42,615	88,241	44,325	44,146	707,477
Iowa	23,184	20,508	31,270	24,398	20,158	31,933	24,428	23,639	35,196	26,441	24,103	32,560	317,818
Kansas	36,454	35,109	19,419	48,179	33,200	20,548	18,239	35,823	49,307	36,469	40,763	20,977	396,487
Kentucky	24,685	28,826	30,630	28,764	29,463	30,936	29,790	29,678	30,582	26,434	35,955	31,592	357,336
Louisiana	26,296	23,205	33,934	28,548	26,377	34,315	27,038	25,144	33,502	31,073	24,702	32,543	346,677
Maine	9,785	15,960	13,218	9,949	13,939	11,973	10,590	15,124	14,672	17,169	19,084	7,857	159,320
Maryland	21,792	21,590	24,353	24,015	23,174	24,817	26,132	25,630	28,351	22,647	25,177	25,389	293,067
Massachusetts	21,438	19,881	21,189	27,298	20,861	27,841	24,455	21,130	25,749	25,705	21,438	27,149	284,134
Michigan	32,215	31,621	50,452	44,555	33,257	61,800	34,838	34,958	61,508	39,013	35,564	58,561	518,342
Minnesota	22,908	20,723	26,005	24,979	25,120	30,764	26,437	27,687	24,341	33,376	27,830	27,018	317,188
Mississippi	27,705	19,914	26,336	27,051	23,048	27,413	26,540	21,491	27,053	30,129	24,184	22,192	303,056
Missouri	40,994	30,194	51,900	38,126	37,697	41,429	43,727	38,712	46,298	47,094	30,590	46,417	493,178
Montana	8,713	6,447	7,840	8,670	7,623	13,787	9,422	6,936	10,025	12,652	6,710	9,516	108,341
Nebraska	12,341	14,873	17,985	14,257	17,959	18,653	14,672	17,800	21,532	16,456	17,100	19,991	203,619
Nevada	6,818	17,306	1,249	8,387	15,125	1,676	10,443	15,233	8,719	10,946	17,448	7,560	120,910
New Hampshire	5,185	3,506	3,993	5,106	3,376	6,533	4,148	2,476	7,156	6,967	2,313	4,906	55,665
New Jersey	32,767	33,920	24,575	36,880	36,846	37,444	42,471	44,474	39,746	39,593	40,484	39,965	449,165
New Mexico	30,528	17,34[illegible]	894	38,653	6,947	804	32,454	12,351	2,384	30,230	15,588	1,554	189,735
New York	36,758	41,044	40,227	40,181	42,423	44,331	40,709	45,206	42,166	43,166	48,271	41,292	505,774
North Carolina	27,707	52,499	53,719	42,772	50,924	60,242	41,221	50,593	57,504	43,235	53,993	53,071	587,480
North Dakota	4,618	6,288	2,285	10,536	10,331	9,958	7,208	8,092	9,334	8,699	6,818	6,838	91,005
Ohio	66,125	63,551	71,578	69,248	67,970	71,511	66,179	71,829	69,411	76,731	66,824	67,467	828,424
Oklahoma	27,869	24,884	38,064	30,591	40,088	37,042	30,386	29,636	38,110	32,002	27,273	32,525	388,470
Oregon	22,699	22,699	22,699	22,699	22,699	22,699	22,699	22,699	22,699	22,699	22,699	22,699	272,388
Pennsylvania	66,689	66,662	74,537	73,360	71,364	75,014	72,909	74,155	75,621	81,203	74,253	74,496	880,263
Rhode Island	4,399	4,399	4,399	5,211	5,211	5,211	5,509	5,509	5,509	3,620	3,620	3,620	56,217
South Carolina	18,568	24,580	26,094	4,625	24,219	39,288	18,380	24,693	32,950	24,197	14,807	33,765	[illegible]
South Dakota	7,002	6,524	8,049	7,322	7,342	7,750	8,107	8,297	8,305	9,384	7,592	7,095	92,769
Tennessee	36,646	37,059	59,358	46,230	33,010	58,968	45,672	38,018	61,016	48,139	41,237	59,676	565,029
Texas	104,797	104,474	126,466	120,424	104,734	126,137	105,316	109,594	118,362	136,879	97,080	119,281	1,373,544
Utah	7,314	22,437	6,246	17,393	9,244	10,201	4,470	22,024	5,033	10,276	21,87[illegible]	6,151	142,663
Vermont	3,312	6,310	3,813	2,638	5,451	3,428	2,835	6,291	3,568	3,592	6,930	3,074	51,242
Virginia	40,210	37,149	37,111	45,286	38,871	43,771	53,724	42,257	42,449	45,47[illegible]	37,422	[illegible],364	508,085
Washington	16,593	29,854	24,498	32,097	17,461	26,155	29,958	28,488	31,148	14,617	35,161	28,438	314,468
West Virginia	10,027	7,884	13,103	10,571	11,770	14,999	15,244	12,161	14,696	15,368	6,136	20,438	152,395
Wisconsin	23,100	50,197	13,153	27,628	31,574	38,806	30,760	31,416	35,146	37,608	34,037	35,633	389,056
Wyoming	9,817	9,460	10,995	7,652	17,485	11,989	12,064	13,999	26,969	24,906	27,675	11,248	184,249
U.S. Total	**1,417,337**	**1,473,415**	**1,524,836**	**1,613,339**	**1,511,735**	**1,671,060**	**1,586,160**	**1,590,257**	**1,699,917**	**1,708,206**	**1,580,158**	**1,609,678**	**18,986,098**

Source: Federal Highway Administration, Monthly Gasoline Reports, 1987.

Diesel Fuel Consumption by States—1988

The table below, prepared by the Federal Highway Administration, shows gross gallons of special fuels, but this is primarily diesel fuel. Included are small amounts of liquefied petroleum gases. In most cases, FHA says, the data reflect retail sales. This is a preliminary report for 1988 and includes some estimates by NPN to offset late reporting by some states.

(Add 000 gal.)

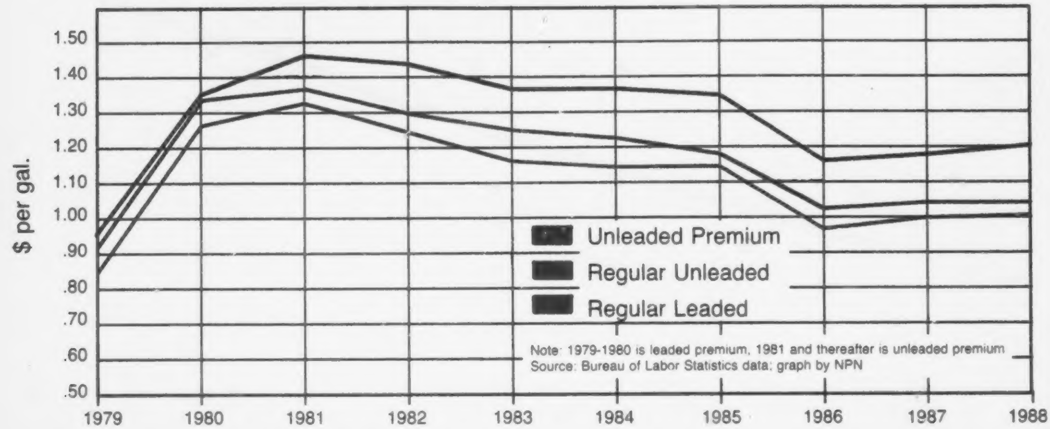
State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Alabama	39,806	30,352	34,232	44,355	32,594	33,303	41,462	33,115	36,151	45,076	35,229	38,180	443,855
Alaska	3,952	2,455	8,181	6,719	6,316	14,003	11,478	10,352	9,385	5,891	1,892	3,682	84,306
Arizona	23,744	26,456	29,754	26,283	20,529	30,889	26,043	21,186	26,713	20,280	13,262	38,701	303,840
Arkansas	11,643	41,386	28,337	26,960	35,447	30,419	25,939	31,245	30,947	27,737	25,433	36,305	351,798
California	139,700	139,700	139,700	142,117	142,117	142,117	151,639	151,639	151,639	160,786	160,786	160,786	1,782,726
Colorado	12,599	12,571	18,828	13,848	14,582	20,187	14,809	15,251	20,383	14,689	14,282	19,323	191,352
Connecticut	16,783	18,796	18,830	16,320	17,454	19,577	17,351	20,412	16,342	16,925	16,804	19,730	215,324
Delaware	4,767	5,747	3,660	5,416	5,217	3,495	4,287	5,644	3,316	4,948	5,675	3,953	56,125
Dist. of Col.	1,582	2,091	2,307	1,797	1,976	2,032	1,952	2,376	1,630	1,971	1,971	1,971	23,657
Florida	67,878	67,928	69,798	76,284	71,497	70,934	68,344	65,131	68,264	69,724	69,724	69,724	835,231
Georgia	72,748	56,810	77,589	53,715	64,669	78,013	65,543	71,945	72,024	74,793	84,654	69,479	841,982
Hawaii	2,179	1,566	1,683	2,129	1,841	1,765	2,238	1,746	1,917	2,238	1,709	1,988	22,999
Idaho	8,269	13,300	5,189	9,966	10,669	115	8,769	14,308	4,260	10,545	13,513	2,005	100,908
Illinois	61,852	58,419	62,752	67,356	62,965	67,726	68,861	65,746	66,119	69,863	65,166	65,166	781,999
Indiana	32,888	61,796	64,035	70,510	59,004	77,798	65,238	52,784	60,426	63,659	63,846	67,491	739,465
Iowa	29,312	19,954	35,058	29,128	27,809	31,421	20,785	34,894	32,931	29,627	27,856	21,286	340,061
Kansas	19,958	30,906	24,767	24,222	24,217	36,930	28,630	30,928	27,918	17,347	25,273	30,703	321,799
Kentucky	27,231	29,651	38,038	29,583	35,389	38,202	29,117	56,931	68,177	57,699	56,499	42,111	508,928
Louisiana	27,462	27,341	37,469	29,471	31,107	36,804	32,880	30,111	36,278	32,125	30,596	36,337	387,981
Maine	17,319	16,810	9,787	15,799	16,378	9,090	16,679	15,776	13,275	18,427	14,907	13,353	177,600
Maryland	20,044	24,612	27,718	23,565	24,086	28,028	26,030	26,524	26,034	24,826	27,063	24,844	303,374
Massachusetts	25,250	19,732	21,593	29,000	23,814	29,555	22,403	21,803	23,063	27,488	20,191	30,239	294,131
Michigan	34,746	33,376	49,948	46,328	35,535	56,032	39,071	37,222	62,062	41,002	36,935	60,549	532,806
Minnesota	25,688	25,619	28,961	29,541	25,430	29,749	28,703	27,455	27,643	27,643	27,643	27,643	331,719
Mississippi	27,108	22,857	27,784	28,826	23,048	26,789	30,170	25,452	26,811	33,041	23,528	27,424	322,838
Missouri	43,113	32,804	49,763	40,211	39,851	53,531	37,220	39,860	53,723	47,914	43,623	60,698	542,311
Montana	11,125	7,967	7,426	13,536	6,329	7,818	13,396	9,046	9,557	13,459	13,459	10,283	123,401
Nebraska	14,355	15,307	21,273	15,485	18,466	22,173	15,513	19,551	22,838	18,123	19,396	17,326	219,806
Nevada	7,784	18,206	7,592	7,136	18,909	4,524	8,032	3,279	8,442	9,402	11,867	14,367	119,540
New Hampshire	6,807	2,433	5,467	6,131	3,679	6,533	7,331	3,349	4 ,644	6,704	3,049	2,671	58,798
New Jersey	44,129	33,503	37,779	41,051	38,392	48,765	37,411	39,015	45,961	39,446	37,310	37,722	480,544
New Mexico	29,309	14,841	4,238	34,474	15,260	5,957	41,707	8,684	2,413	45,144	4,739	602	207,368
New York	38,865	43,350	43,834	42,160	47,769	44,226	39,275	49,217	43,587	43,587	43,587	43,587	523,044
North Carolina	50,656	83,749	62,162	83,446	59,965	63,647	40,810	56,224	55,175	49,388	56,458	58,301	720,181
North Dakota	5,254	6,688	7,045	7,671	7,632	8,865	8,047	7,495	9,336	9,334	7,359	7,483	92,209
Ohio	67,632	65,909	87,030	68,776	71,587	71,845	66,152	72,424	73,915	78,262	73,320	73,353	868,205
Oklahoma	28,790	27,675	39,695	28,545	31,831	39,265	31,193	31,061	38,900	33,254	31,655	36,173	398,037
Oregon (a)	—	—	—	—	—	—	—	—	—	—	—	—	—
Pennsylvania	71,928	75,682	82,515	77,143	77,658	82,069	74,589	82,617	80,157	83,717	78,563	76,440	943,078
Rhode Island	3,461	3,461	3,461	3,864	3,864	3,864	3,740	3,740	3,740	3,703	3,703	3,703	44,304
South Carolina	20,655	18,909	43,234	15,813	20,303	32,340	28,080	25,598	28,778	25,968	25,968	25,968	311,614
South Dakota	7,690	7,411	7,518	6,746	7,713	7,782	8,375	9,206	9,071	10,310	7,225	6,625	95,672
Tennessee	39,068	39,525	53,682	47,022	45,481	60,448	43,331	45,052	58,649	44,317	43,364	61,762	581,701
Texas	85,726	103,731	125,647	103,094	90,510	127,536	104,681	111,802	121,950	106,227	108,372	123,463	1,312,739
Utah	6,678	42,830	6,788	6,723	24,031	9,563	3,014	24,991	7,239	6,559	28,364	5,861	172,441
Vermont	3,509	7,154	2,510	2,613	6,770	3,264	3,264	7,857	2,411	2,709	9,332	3,219	54,612
Virginia	39,078	39,080	48,340	45,702	42,251	49,768	42,766	50,535	42,731	49,349	45,847	43,255	539,702
Washington	32,295	34,028	26,065	22,701	37,691	29,314	32,581	31,373	23,301	28,149	27,774	30,084	355,356
West Virginia	9,379	13,189	12,877	12,269	14,003	4,481	22,575	16,164	12,241	15,040	15,992	14,051	162,261
Wisconsin	34,399	34,883	71,588	33,801	3,991	39,239	35,410	38,556	39,276	40,309	37,337	37,718	446,507
Wyoming	11,462	26,737	12,634	12,986	13,272	12,949	13,675	14,897	15,160	14,876	13,083	12,354	174,265
U.S. Total	**1,467,655**	**1,589,283**	**1,736,161**	**1,628,337**	**1,560,898**	**1,754,739**	**1,640,579**	**1,671,569**	**1,726,903**	**1,719,397**	**1,655,583**	**1,720,095**	**19,817,199**

(a) Oregon no longer collects diesel data.

Source: Federal Highway Administration, Monthly Gasoline Reports, 1988.

Average Pump Prices for Gasoline 1979-1988

($ per gal. including taxes and reflecting full-service etc.)



Note: 1979-1980 is leaded premium, 1981 and thereafter is unleaded premium
Source: Bureau of Labor Statistics data; graph by NPN

Gasoline Prices by Grades and Months

(U.S. averages, retail, in ¢ per gal. including taxes and types of service.)

		Leaded Regular	Unleaded Regular	Unleaded Premium (a)	Average for All Types
1988	January	88.1	93.3	109.5	94.7
	February	85.9	91.3	108.2	92.8
	March	85.0	90.4	107.4	92.0
	April	88.3	93.0	108.8	94.6
	May	91.1	95.5	110.5	97.0
	June	91.0	95.5	111.1	97.1
	July	92.3	96.7	112.3	98.4
	August	94.5	98.7	113.8	100.4
	September	93.3	97.4	113.0	99.2
	October	91.0	95.6	111.9	97.5
	November	90.4	94.9	111.6	97.2
	December	88.5	93.0	110.1	95.3
	Average	**90.0**	**94.6**	**110.7**	**96.4**
1987	January	80.6	86.2	100.7	86.8
	February	84.8	90.5	104.7	91.1
	March	85.6	91.2	105.2	91.8
	April	87.9	93.4	107.3	94.0
	May	88.8	94.1	107.9	94.8
	June	90.6	95.8	109.8	96.6
	July	92.1	97.1	111.5	98.0
	August	94.6	99.5	113.9	100.4
	September	94.0	99.0	113.6	100.0
	October	93.1	97.6	112.8	98.8
	November	92.8	97.6	112.5	98.7
	December	91.2	96.1	111.9	97.5
	Average	**89.7**	**94.8**	**109.3**	**95.7**
1986	January	110.7	119.4	133.6	119.0
	February	103.4	112.0	128.2	111.9
	March	89.4	98.1	116.0	98.3
	April	81.5	88.8	106.1	89.5
	May	85.2	92.3	107.5	92.7
	June	88.5	95.5	110.0	95.8
	July	82.2	89.0	104.5	89.5
	August	77.8	84.3	99.9	84.8
	September	79.7	86.0	101.0	86.4
	October	77.1	83.1	98.7	83.7
	November	76.2	82.1	98.0	82.7
	December	76.4	82.3	98.4	83.0
	Average	**85.7**	**92.7**	**108.5**	**93.1**
Average	1985	111.5	120.2	134.0	119.6
	1984	112.9	121.2	136.6(a)	119.8
	1983	115.7	124.1	138.3(a)	122.5
	1982	122.2	129.6	141.5(a)	128.1
	1981(b)	131.1	137.8	147.0(a)	135.3
	1980	119.1	124.5	NA	122.1
	1978	62.6	67.0	NA	65.2
	1976	59.0	61.4	NA	NA

(a) In January 1984, this series was switched from leaded premium to unleaded premium to reflect changing market conditions.

(b) Data for 1981 and earlier are for leaded premium. Beginning in September 1981, Bureau of Labor Statistics changed the weights used in the calculation of average motor gasoline prices. In the fourth column above, gasohol is included and unleaded premium is weighted more heavily.

Source: Energy Information Administation, Monthly Energy Review, October 1988.

Retail Gasoline Prices by Months and Grades

All Types

Selected Local Areas	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average For Year
SIZE A (MORE THAN 1,200,000 POPULATION)													
Chicago-N.Western Ind.	$1.011	$1.013	$1.001	$1.015	$1.038	$1.042	$1.065	$1.106	$1.091	$1.055	$1.051	$1.040	$1.044
L.A.-Long Beach, Anaheim	.893	.860	.863	.935	.966	.971	.977	.977	.976	.955	.925	.893	.933
N.Y., N.Y.-N.Eastern N.J.	1.031	1.012	1.001	.995	.994	1.007	1.023	1.041	1.038	1.034	1.034	1.035	1.020
Philadelphia, Pa.-N.J.	.942	.932	.915	.915	.925	.927	.941	.947	.947	.948	.953	.958	.938
San Francisco-Oakland	.975	.969	.990	1.001	1.016	1.028	1.034	1.032	1.043	1.030	.992	.967	1.006
SIZE B (360,000 to 1,200,000 POPULATION)													
Baltimore, Md.	1.007	1.000	1.000	1.003	1.019	1.022	1.029	1.048	1.041	1.038	1.033	1.036	1.023
Boston, Mass.	1.010	.997	.982	.972	.987	.995	1.004	1.023	1.023	1.026	1.025	1.025	1.006
Cleveland, Ohio	.950	.918	.926	.960	1.027	1.027	1.019	1.042	1.016	.983	.983	.965	.985
Miami, Fla.	1.035	1.017	1.008	1.004	1.028	1.039	1.054	1.019	1.029	1.031	1.019	1.018	1.025
St. Louis, Mo.-Ill.	.933	.917	.900	.903	.931	.926	.937	.951	.935	.920	.904	.893	.921
Washington,-Md.-Va.	1.084	1.083	1.081	1.081	1.097	1.099	1.105	1.120	1.116	1.118	1.113	1.115	1.101
SIZE C (50,000 to 360,000 POPULATION)													
Dallas-Fort Worth, Tex.	.913	.908	.888	.886	.899	.899	.906	.925	.933	.920	.904	.896	.906
Detroit, Mich.	.944	.914	.898	.954	.987	.975	.987	1.030	.999	.957	.990	.963	.967
Houston, Tex.	.892	.878	.864	.872	.894	.896	.927	.959	.953	.938	.928	.925	.911
Pittsburgh, Pa.	.912	.882	.851	.864	.898	.911	.915	.937	.918	.903	.924	.934	.904

Leaded Regular

Selected Local Areas	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average For Year
SIZE A (MORE THAN 1,200,000 POPULATION)													
Chicago-N.Western Ind.	.947	.959	.938	.964	.987	.991	1.017	1.062	1.031	.960	.973	.959	.982
L.A.-Long Beach, Anaheim	.869	.813	.821	.893	.926	.929	.941	.939	.938	.915	.885	.855	.894
N.Y., N.Y.-N.Eastern N.J.	.928	.912	.906	.898	.902	.908	.930	.939	.940	.928	.924	.907	.919
Philadelphia-N.J.	.898	.893	.877	.879	.891	.891	.910	.918	.916	.920	.934	.944	.906
San Francisco-Oakland	.915	.910	.876	.894	.916	.925	.930	.935	.938	.928	.878	.844	.907
SIZE B (360,000 to 1,200,000 POPULATION)													
Baltimore, Md.	.955	.944	.942	.943	.936	.941	.947	.976	.965	.969	.970	.983	.956
Boston, Mass.	.929	.920	.907	.890	.902	.911	.913	.929	.935	.932	.951	.955	.923
Cleveland, Ohio	.873	.838	.816	.831	.906	.907	.902	NA	NA	NA	NA	NA	.868
Miami, Fla.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
St. Louis, Mo.-Ill.	.880	.865	.847	.843	.871	.867	.886	.902	.885	.862	.842	.834	.865
Washington-Md.-Va.	.938	.932	.925	NA	NA	NA	NA	NA	NA	NA	NA	NA	.932
SIZE C (50,000 to 360,000 POPULATION)													
Dallas-Fort Worth, Tex.	.875	.868	.852	.852	.865	.867	.877	.898	.903	.891	.881	.865	.875
Detroit, Mich.	.879	.846	.829	.894	.932	.919	.945	.981	.953	.908	.934	.913	.911
Houston, Tex.	.832	.817	.803	.817	.843	.850	.886	.922	.905	.878	.838	.837	.852
Pittsburgh, Pa.	.884	.855	.822	.833	.868	.880	.882	.925	.897	.872	.922	.949	.882

Unleaded Regular

Selected Local Areas	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average For Year
SIZE A (MORE THAN 1,200,000 POPULATION)													
Chicago-N.Western Ind.	.989	.986	.974	.984	1.010	1.014	1.035	1.080	1.065	1.028	1.022	1.009	1.016
L.A.-Long Beach, Anaheim	.866	.837	.839	.914	.947	.952	.955	.956	.953	.934	.901	.866	.910
N.Y., N.Y.-N.Eastern N.J.	.971	.951	.938	.934	.935	.947	.963	.980	.977	.970	.969	.966	.958
Philadelphia-N.J.	.907	.892	.876	.875	.885	.885	.898	.904	.906	.901	.904	.908	.895
San Francisco-Oakland	.976	.971	1.002	1.009	1.024	1.035	1.036	1.033	1.051	1.029	.993	.968	1.011
SIZE B (360,000 to 1,200,000 POPULATION)													
Baltimore, Md.	.968	.962	.963	.965	.979	.980	.984	1.002	.998	.990	.983	.984	.980
Boston, Mass.	.979	.967	.948	.940	.957	.964	.974	.993	.989	.988	.981	.978	.972
Cleveland, Ohio	.926	.894	.898	.931	.999	.999	.988	.999	.968	.931	.928	.914	.948
Miami, Fla.	.977	.956	.946	.941	.963	.975	.991	.970	.980	.977	.967	.964	.967
St. Louis, Mo.-Ill.	.914	.896	.879	.886	.915	.912	.919	.932	.916	.902	.887	.876	.903
Washington-Md.-Va.	1.031	1.028	1.026	1.030	1.040	1.042	1.047	1.065	1.056	1.056	1.052	1.051	1.044
SIZE C (50,000 to 360,000 POPULATION)													
Dallas-Fort Worth, Tex.	.897	.893	.872	.870	.883	.878	.884	.902	.913	.901	.884	.877	.888
Detroit, Mich.	.952	.922	.907	.958	.990	.976	.984	1.030	1.000	.956	.991	.962	.969
Houston, Tex.	.859	.843	.829	.836	.859	.861	.879	.912	.904	.893	.889	.886	.871
Pittsburgh, Pa.	.895	.863	.831	.843	.877	.889	.895	.913	.895	.882	.895	.902	.882

Unleaded Premium

Selected Local Areas	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average For Year
SIZE A (MORE THAN 1,200,000 POPULATION)													
Chicago-N.Western Ind.	1.161	1.168	1.165	1.180	1.196	1.201	1.223	1.247	1.239	1.215	1.208	1.214	1.201
L.A.-Long Beach, Anaheim	1.071	1.051	1.046	1.103	1.125	1.131	1.141	1.140	1.143	1.124	1.104	1.075	1.105
N.Y., N.Y.-N.Eastern N.J.	1.151	1.137	1.125	1.116	1.111	1.129	1.143	1.170	1.165	1.162	1.158	1.164	1.144
Philadelphia-N.J.	1.091	1.080	1.060	1.062	1.069	1.079	1.087	1.090	1.086	1.095	1.099	1.103	1.083
San Francisco-Oakland	1.114	1.106	1.080	1.090	1.099	1.114	1.129	1.123	1.128	1.128	1.100	1.081	1.108
SIZE B (360,000 to 1,200,000 POPULATION)													
Baltimore, Md.	1.136	1.132	1.133	1.140	1.159	1.160	1.170	1.188	1.176	1.176	1.173	1.173	1.160
Boston, Mass.	1.134	1.124	1.115	1.103	1.118	1.123	1.132	1.150	1.151	1.152	1.148	1.149	1.133
Cleveland, Ohio	1.140	1.107	1.122	1.158	1.213	1.214	1.218	1.192	1.162	1.143	1.145	1.118	1.161
Miami, Fla.	1.098	1.083	1.075	1.071	1.098	1.108	1.123	1.093	1.100	1.109	1.094	1.095	1.096
St. Louis, Mo.-Ill.	1.116	1.113	1.106	1.107	1.129	1.118	1.130	1.141	1.135	1.119	1.107	1.093	1.118
Washington-Md.-Va.	1.287	1.291	1.292	1.288	1.299	1.299	1.304	1.317	1.314	1.313	1.310	1.312	1.302
SIZE C (50,000 to 360,000 POPULATION)													
Dallas-Fort Worth, Tex.	1.034	1.029	1.002	1.002	1.015	1.023	1.032	1.051	1.054	1.036	1.013	1.013	1.025
Detroit, Mich.	1.073	1.051	1.035	1.099	1.133	1.134	1.136	1.181	1.135	1.114	1.148	1.123	1.114
Houston, Tex.	1.049	1.039	1.026	1.032	1.045	1.042	1.066	1.095	1.096	1.083	1.081	1.078	1.061
Pittsburgh, Pa.	1.069	1.041	1.016	1.034	1.066	1.084	1.084	1.089	1.076	1.062	1.082	1.080	1.065

and Population Areas—1988(a)

Population Sizes and Regions

Leaded Regular

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average For Year
U.S. city average	$0.881	$0.859	$0.850	$0.883	$0.911	$0.910	$0.923	$0.945	$0.933	$0.910	$0.904	$0.885	$0.900
Region and area size													
Northeast urban	.913	.896	.879	.876	.895	.902	.912	.929	.924	.917	.926	.930	.908
Size A—More than 1.200.000	.911	.898	.884	.880	.893	.898	.913	.928	.925	.917	.928	.932	.909
Size B—500.000 to 1.200.000	.916	.896	.879	.865	.896	.898	.905	.922	.915	.906	.889	.894	.898
Size C—50.000 to 500.000	.910	.876	.853	.871	.893	.901	.903	.923	.909	.908	.919	.920	.899
North Central urban	.889	.865	.855	.897	.937	.927	.939	.981	.950	.904	.920	.901	.914
Size A—More than 1.200.000	.885	.864	.853	.894	.931	.923	.942	.984	.951	.901	.918	.898	.912
Size B—360.000 to 1.200.000	.837	.833	.841	.877	.940	.900	.902	.974	.934	.874	.908	.873	.891
Size C—50.000 to 360.000	.916	.897	.881	.934	.961	.949	.965	.995	.977	.925	.960	.953	.943
South urban	.862	.847	.843	.864	.887	.885	.904	.932	.919	.901	.899	.885	.886
Size A—More than 1.200.000	.871	.861	.847	.858	.870	.872	.893	.913	.905	.889	.880	.873	.878
Size B—450.000 to 1.200.000	.889	.872	.867	.889	.918	.917	.926	.959	.949	.938	.929	.904	.913
Size C—50.000 to 450.000	.830	.818	.822	.851	.875	.869	.892	.924	.906	.885	.881	.867	.868
West urban	.884	.852	.845	.896	.922	.927	.934	.936	.936	.921	.892	.864	.901
Size A—More than 1.250.000	.877	.839	.833	.889	.920	.922	.929	.930	.931	.914	.885	.856	.694
Size C—50.000 to 330.000	.905	.884	.873	.903	.926	.931	.939	.953	.946	.923	.901	.861	.912

Unleaded Regular

U.S. city average	$0.933	$0.913	$0.904	$0.930	$0.955	$0.955	$0.967	$0.987	$0.974	$0.957	$0.949	$0.930	$0.946
Region and area size													
Northeast urban	.968	.948	.931	.929	.940	.948	.959	.974	.969	.959	.963	.962	.954
Size A—More than 1.200.000	.950	.931	.915	.912	.920	.929	.942	.957	.954	.948	.949	.948	.938
Size B—500.000 to 1.200.000	1.057	1.043	1.026	1.024	1.041	1.045	1.054	1.070	1.068	1.042	1.045	1.040	1.046
Size C—50.000 to 500.000	.948	.915	.895	.905	.915	.919	.925	.939	.926	.914	.922	.928	.921
North Central urban	.931	.911	.899	.937	.975	.964	.973	1.013	.985	.951	.958	.925	.952
Size A—More than 1.200.000	.945	.925	.908	.943	.978	.972	.984	1.020	.992	.960	.957	.932	.960
Size B—360.000 to 1.200.000	.858	.852	.856	.897	.948	.914	.909	.973	.936	.877	.925	.852	.900
Size C—50.000 to 360.000	.941	.924	.911	.960	.996	.983	.998	1.036	1.016	.972	1.006	.994	.978
South urban	.925	.908	.899	.916	.937	.936	.952	.976	.962	.950	.945	.935	.937
Size A—More than 1.200.000	.935	.923	.911	.916	.935	.937	.943	.962	.959	.951	.943	.940	.938
Size B—450.000 to 1.200.000	.941	.920	.898	.919	.941	.938	.948	.978	.961	.955	.942	.926	.939
Size C—50.000 to 450.000	.898	.880	.878	.912	.937	.932	.965	.987	.961	.945	.948	.931	.931
West urban	.917	.894	.894	.942	.968	.974	.984	.983	.983	.967	.933	.904	.945
Size A—More than 1.250.000	.894	.868	.871	.927	.957	.961	.964	.966	.967	.951	.920	.890	.928
Size C—50.000 to 330.000	.956	.938	.917	.947	.969	.987	.992	1.001	.995	.971	.943	.901	.960

Unleaded Premium

U.S. city average	$1.095	$1.082	$1.074	$1.088	$1.105	$1.111	$1.123	$1.138	$1.130	$1.119	$1.116	$1.101	$1.107
Region and area size													
Northeast urban	1.136	1.120	1.106	1.100	1.106	1.120	1.129	1.152	1.147	1.146	1.147	1.153	1.130
Size A—More than 1.200.000	1.136	1.122	1.109	1.103	1.104	1.118	1.130	1.152	1.147	1.146	1.145	1.150	1.130
Size B—500.000 to 1.200.000	1.149	1.138	1.123	1.120	1.138	1.142	1.158	1.182	1.176	1.175	1.186	1.185	1.156
Size C—50.000 to 500.000	1.128	1.094	1.071	1.073	1.085	1.105	1.093	1.121	1.109	1.106	1.109	1.132	1.102
North Central urban	1.060	1.058	1.054	1.090	1.126	1.115	1.130	1.160	1.135	1.101	1.139	1.112	1.107
Size A—More than 1.200.000	1.113	1.106	1.106	1.136	1.167	1.165	1.181	1.201	1.179	1.160	1.177	1.162	1.154
Size B—360.000 to 1.200.000	1.035	1.039	1.033	1.069	1.127	1.094	1.073	1.152	1.110	1.053	1.099	1.039	1.076
Size C—50.000 to 360.000	.947	.950	.942	.993	1.026	1.004	1.052	1.069	1.049	.994	1.043	1.032	1.002
South urban	1.086	1.074	1.067	1.074	1.092	1.096	1.111	1.125	1.117	1.108	1.097	1.079	1.094
Size A—More than 1.200.000	1.112	1.103	1.093	1.097	1.118	1.122	1.130	1.136	1.136	1.130	1.122	1.121	1.114
Size B—450.000 to 1.200.000	1.077	1.062	1.055	1.061	1.081	1.079	1.093	1.114	1.105	1.091	1.074	1.031	1.077
Size C—50.000 to 450.000	1.073	1.061	1.068	1.077	1.087	1.095	1.109	1.126	1.109	1.103	1.104	1.099	1.093
West urban	1.084	1.064	1.059	1.096	1.113	1.123	1.131	1.130	1.129	1.116	1.094	1.070	1.101
Size A—More than 1.250.000	1.076	1.057	1.053	1.092	1.109	1.119	1.129	1.127	1.130	1.119	1.098	1.074	1.099
Size C—50.000 to 330.000	1.113	1.088	1.075	1.110	1.125	1.153	1.167	1.174	1.115	1.095	1.074	1.058	1.112

(a) These prices are in $/gal. and include federal and state taxes and are representative of full service, self service and mini service. The selected local areas and the population groups are Standard Metropolitan Statistical Areas as defined by BLS and the U.S. Census Bureau.

Source: Bureau of Labor Statistics, Dept. of Commerce

(Continued on Next Page)

Retail Gasoline Prices (continued)[a]

Population Sizes and Regions

All Types

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average For Year
U.S. city average	$0.947	$0.928	$0.920	$0.946	$0.970	$0.971	$0.984	$1.004	$0.992	$0.976	$0.972	$0.953	$0.964
Region and area size													
Northeast urban	1.002	.983	.967	.964	.975	.984	.995	1.012	1.007	1.002	1.008	1.010	.992
Size A—More than 1,200,000	.997	.980	.965	.961	.968	.978	.992	1.008	1.005	1.002	1.005	1.007	.989
Size B—500,000 to 1,200,000	1.056	1.041	1.025	1.020	1.040	1.043	1.054	1.072	1.068	1.052	1.063	1.060	1.050
Size C—50,000 to 500,000	.977	.943	.921	.932	.944	.951	.953	.971	.958	.951	.959	.968	.952
North Central urban	.934	.915	.904	.943	.981	.971	.982	1.021	.993	.957	.976	.947	.960
Size A—More than 1,200,000	.950	.932	.919	.954	.989	.983	.997	1.033	1.005	.973	.986	.962	.974
Size B—360,000 to 1,200,000	.877	.873	.876	.915	.971	.936	.930	.998	.960	.906	.946	.889	.923
Size C—50,000 to 360,000	.933	.919	.905	.955	.988	.974	.994	1.027	1.008	.961	1.000	.989	.971
South urban	.942	.927	.920	.936	.957	.957	.975	.999	.986	.973	.970	.955	.958
Size A—More than 1,200,000	.966	.955	.944	.950	.969	.972	.983	.997	.995	.986	.978	.975	.973
Size B—450,000 to 1,200,000	.957	.939	.927	.944	.967	.966	.977	1.005	.993	.983	.974	.944	.965
Size C—50,000 to 450,000	.900	.886	.887	.915	.938	.934	.965	.990	.968	.952	.954	.939	.936
West urban	.926	.901	.901	.947	.973	.979	.988	.988	.988	.973	.943	.915	.952
Size A—More than 1,250,000	.910	.884	.887	.940	.969	.973	.978	.979	.981	.965	.936	.908	.943
Size C—50,000 to 330,000	.953	.933	.917	.947	.969	.983	.989	1.001	.987	.964	.940	.901	.957

Retail Gasoline Prices For Selected Areas[a]

	1988				1987				1986			
Standard Metropolitan Statistical Areas	Lead Reg.	Unld. Reg.	Unld. Prem.	All Types	Lead Reg.	Unld. Reg.	Unld. Prem.	All Types	Lead Reg.	Unld. Reg.	Unld. Prem.	All Types
U.S. City Average	$0.900	$0.946	$1.107	$0.964	$0.897	$0.948	$1.093	$0.979	$0.857	$0.928	$1.085	$0.931
Size A - (Population more than 1,200,000)												
Chicago-N.Western Ind	982	1.016	1.201	1.044	968	1.004	1.184	1.025	911	953	1.173	978
L.A.-Long Beach, Anaheim	894	910	1.105	933	901	931	1.107	943	829	957	1.129	967
N.Y., N.Y.-N.Eastern N.J.	919	958	1.144	1.020	903	936	1.104	986	859	908	1.078	954
Philadelphia, PA-N.J.	906	895	1.083	938	891	895	1.070	929	869	880	1.057	913
San Francisco-Oakland	907	1.011	1.108	1.006	870	955	1.081	949	869	976	1.155	974
Size B - (Population 360,000 to 1,250,000)												
Baltimore, Md	956	980	1.160	1.023	913	935	1.100	970	878	921	1.101	954
Boston, Mass	923	972	1.133	1.006	883	929	1.080	958	858	922	1.078	946
Cleveland, Ohio	868	948	1.161	985	888	941	1.143	961	821	902	1.118	925
Miami, Fla	NA	967	1.096	1.025	949	983	1.087	1.023	895	953	1.043	975
St. Louis, Mo.-Ill	865	903	1.118	921	853	899	1.085	910	800	865	1.083	876
Washington, D.C.-Md.-Va	932	1.044	1.302	1.101	911	998	1.245	1.042	891	983	1.228	1.022
Size C - (Population 50,000 to 360,000)												
Dallas-Fort Worth, Tex	875	888	1.025	906	856	881	1.006	892	788	831	962	836
Detroit, Mich	911	969	1.114	967	900	972	1.097	964	833	944	1.048	923
Houston, Tex	852	871	1.061	911	852	880	1.068	908	753	796	1.000	821
Pittsburgh, Pa	882	882	1.065	904	887	899	1.078	916	855	883	1.057	894

(a) See footnote on preceding page

Source: Bureau of Labor Statistics, U.S. Dept. of Commerce

Wholesale Price Trends Through 1987

	Refinery products in eight refinery markets representing total U.S.						Crude	
					Average 4 products			
Year	Motor gasoline c/gal.	Kero-sine c/gal.	Light fuel c/gal.	Heavy fuel c/gal.	c/gal.	$/bbl.	8 areas $/bbl.	Products vs. crude $/bbl.
1988 (a)	50.31	50.72	46.10	38.72	46.22	19.41	12.66	6.75
1987	53.22	56.75	52.25	45.36	50.89	21.37	15.41	5.96
1986	47.74	49.92	44.91	36.23	43.97	18.47	12.51	5.96
1985	81.11	81.69	76.66	56.41	73.06	30.69	24.09	6.60
1984	81.14	84.75	79.62	59.14	74.49	31.29	25.88	5.41
1983	86.97	85.12	80.05	57.30	76.94	32.31	26.19	6.12
1982	94.56	97.18	91.95	57.80	83.27	34.97	28.52	6.45
1981	101.63	101.03	97.20	61.17	88.75	37.28	31.77	5.51

(a) Preliminary

Source: Independent Petroleum Assn. of America. Product figures reflect trends in prices but not the actual sales realizations for producers or refiners.

Supplier Gasoline Prices, by Type of Seller

(¢ per gal., excluding taxes)

	Major Refiners			Other Refiners			Average		
	Sales to End-Users			Sales to End-Users			Sales to End-Users		
Year Month	Through Company Outlets	Other End-Users	Sales for Resale	Through Company Outlets	Other End-Users	Sales for Resale	Through Company Outlets	Other End-Users	Sales for Resale
1988									
January	66.9	52.9	55.5	62.5	53.7	47.3	65.6	53.3	53.7
February	65.1	54.5	55.5	60.6	52.6	48.3	63.8	53.6	53.9
March	64.4	53.8	55.4	60.4	51.4	49.1	63.3	53.0	53.8
April	67.8	58.1	59.9	64.1	56.2	54.0	66.8	57.4	58.4
May	70.1	60.0	61.3	66.5	58.3	55.2	69.1	59.5	59.8
June	69.8	59.9	60.8	66.0	58.0	54.5	68.7	59.3	59.2
July	71.6	62.3	63.8	67.6	58.6	58.0	70.5	60.8	62.3
August	73.6	62.5	62.9	69.8	59.7	56.4	72.6	61.5	61.3
September	72.1	58.6	59.8	67.9	54.9	52.2	70.9	57.2	58.0
October	70.2	57.1	59.2	66.0	51.3	51.4	69.1	54.7	57.3
November	69.6	58.6	60.0	65.7	52.0	52.6	68.5	56.0	58.1
December	68.2	55.5	56.9	64.2	49.8	49.0	67.1	53.2	54.9
1988 Average	**69.2**	**57.7**	**59.3**	**65.2**	**54.4**	**52.6**	**68.1**	**56.4**	**57.7**
1987									
January	61.3	53.6	54.2	58.0	51.1	50.0	60.4	52.8	53.3
February	63.9	56.7	56.3	61.0	51.6	51.1	63.1	54.2	55.1
March	64.8	55.8	57.5	61.5	51.5	52.2	63.9	53.9	56.3
April	66.6	58.3	59.1	63.3	55.1	53.8	65.7	57.1	57.8
May	68.0	59.7	60.7	64.5	56.9	55.7	67.0	58.7	59.5
June	69.7	61.0	61.8	66.1	55.9	57.5	68.7	58.5	60.8
July	71.3	62.5	63.4	68.0	58.3	59.4	70.4	60.9	62.5
August	73.3	63.6	64.7	70.2	58.7	60.0	72.5	61.4	63.6
September	72.2	61.1	61.8	69.4	58.3	56.5	71.4	60.0	60.6
October	71.4	61.2	61.7	68.2	58.4	56.8	70.5	60.2	60.5
November	71.2	61.3	61.2	67.5	55.9	55.4	70.3	58.8	59.9
December	69.5	56.9	57.0	65.2	53.0	49.7	68.4	68.4	55.3
1987 Average	**67.7**	**59.2**	**60.1**	**65.3**	**55.2**	**55.0**	**67.8**	**67.8**	**58.9**
1986 Average	**64.1**	**57.6**	**54.4**	**61.2**	**52.7**	**48.7**	**63.2**	**55.8**	**53.1**
1984 Average	**92.0**	**85.7**	**84.2**	**90.0**	**84.9**	**80.2**	**91.4**	**85.6**	**83.2**
1982 Average	**108.2**	**101.1**	**98.3**	**105.6**	**100.2**	**94.3**	**107.2**	**100.9**	**97.3**
1980 Average	**105.6**	**98.7**	**95.1**	**103.0**	**97.8**	**91.3**	**104.6**	**95.5**	**94.1**

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988, published March 1989. (Table 13)

Supplier Gasoline Prices, by Grade and Type

(¢ per gal., excluding taxes)

	Leaded Regular			Unleaded Regular			Premium		
	Sales to End-Users			Sales to End-Users			Sales to End-Users		
Year Month	Through Company Outlets	Other End-Users	Sales for Resale	Through Company Outlets	Other End-Users	Sales for Resale	Through Company Outlets	Other End-Users	Sales for Resale
1988									
January	60.4	51.9	50.2	62.8	51.7	51.1	77.1	62.8	63.1
February	58.6	52.3	50.6	61.2	52.0	51.3	75.0	52.7	62.9
March	57.8	52.2	51.1	60.4	51.9	51.4	75.1	59.9	62.4
April	61.5	57.9	56.2	64.0	56.0	55.8	78.0	65.5	66.8
May	64.0	59.2	57.3	66.3	58.2	57.2	80.2	67.5	68.6
June	63.4	58.7	56.7	65.7	57.8	56.3	80.0	68.6	68.5
July	65.0	61.1	60.3	67.5	59.2	59.3	81.7	70.4	71.8
August	67.2	62.1	59.2	69.6	59.9	58.2	83.7	69.4	70.9
September	65.6	57.8	55.2	67.8	55.4	54.7	82.3	66.4	68.1
October	63.6	53.6	54.0	65.6	53.1	53.9	80.7	64.2	68.0
November	62.6	54.1	54.4	65.2	54.3	54.8	80.3	66.7	68.9
December	61.2	50.0	50.6	63.5	51.7	51.5	79.0	63.1	65.8
1988 Average	**62.5**	**55.5**	**54.8**	**65.0**	**55.0**	**54.7**	**79.5**	**65.3**	**67.3**
1987									
January	54.8	52.1	51.0	58.9	51.9	51.5	71.5	60.6	60.8
February	57.8	53.2	52.6	61.4	53.3	53.3	74.6	62.1	63.1
March	58.7	53.9	53.9	62.3	52.9	54.4	75.3	63.7	64.5
April	60.5	57.0	55.6	64.0	55.9	55.9	77.1	65.3	66.0
May	61.7	58.7	57.3	65.3	57.5	57.5	78.0	66.9	67.5
June	63.7	60.1	58.7	67.0	57.0	58.8	79.4	66.5	68.9
July	65.4	60.5	60.5	68.7	59.8	60.6	80.8	68.9	70.6
August	67.3	60.9	61.3	70.7	60.4	61.6	83.3	70.1	71.7
September	66.3	60.2	58.3	69.4	59.1	58.4	82.5	65.6	69.2
October	65.3	60.8	58.3	68.2	58.8	58.3	81.8	67.2	68.7
November	65.0	58.1	57.4	67.9	57.9	57.6	81.7	65.3	68.3
December	63.0	56.1	51.9	65.6	54.2	53.0	79.7	63.6	64.3
1987 Average	**62.3**	**57.4**	**56.5**	**65.9**	**56.4**	**56.9**	**79.0**	**65.4**	**67.1**
1986 Average	**57.8**	**54.4**	**50.1**	**62.4**	**54.9**	**52.2**	**74.8**	**63.0**	**61.0**
1985 Average	**84.6**	**82.0**	**79.3**	**92.5**	**86.1**	**84.3**	**103.0**	**92.8**	**92.2**
1984 Average	**85.1**	**82.8**	**79.5**	**92.2**	**86.5**	**84.2**	**102.1**	**93.7**	**91.6**

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988, published March 1989. (Table 11)

Supplier Product Prices for Resale

(¢ per gal., excluding taxes)

Year Month	Motor Gasoline	Aviation Gasoline	Kerosine-Type Jet Fuel	Propane (Consumer Grade)	Kerosine	No. 1 Distillate	No. 2 Distillate: No. 2 Fuel Oil	No. 2 Distillate: No. 2 Diesel Fuel	No. 2 Distillate: Average	No. 4 Fuel[a]	Residual Fuel Oil
1988											
January	53.7	86.0	53.0	26.7	59.3	57.7	52.1	51.2	51.7	47.6	32.3
February	53.9	84.2	52.1	26.4	57.2	54.5	48.9	49.1	49.0	45.8	32.0
March	53.8	84.4	50.2	25.4	54.3	54.7	47.6	49.1	48.3	41.8	28.4
April	58.4	84.6	50.3	25.0	54.2	59.4	50.6	51.5	51.1	39.2	30.0
May	59.8	85.2	51.1	24.6	53.3	58.0	50.1	51.3	50.7	39.0	31.3
June	59.2	85.3	50.7	24.1	49.9	54.0	46.6	47.8	47.3	41.6	30.9
July	62.3	86.3	47.5	21.7	48.3	51.0	43.3	43.4	43.4	39.5	29.0
August	61.3	86.9	47.8	21.9	48.9	51.6	44.3	45.0	44.7	40.8	30.7
September	58.0	86.0	47.0	22.4	49.8	51.8	43.2	44.8	44.1	42.1	28.7
October	57.3	84.0	45.2	22.0	49.4	50.6	41.9	42.0	42.0	31.4	25.0
November	58.1	83.5	46.6	22.0	52.9	53.5	45.1	44.6	44.8	38.5	27.8
December	54.9	84.0	50.0	22.8	57.8	56.4	49.9	48.0	49.1	41.7	29.4
1988 Average	**57.7**	**85.2**	**49.4**	**23.9**	**54.9**	**54.9**	**47.3**	**47.3**	**47.3**	**41.0**	**29.7**
1987											
January	53.3	82.9	49.0	25.0	59.2	57.0	50.6	49.5	50.2	46.1	37.4
February	55.1	84.9	49.7	24.4	56.6	54.8	49.3	49.6	49.4	44.9	37.1
March	56.3	83.6	49.1	23.6	54.2	53.9	49.0	48.7	48.9	43.0	35.8
April	57.8	84.1	50.2	24.4	55.6	54.9	49.4	49.7	49.6	44.1	37.1
May	59.5	85.2	51.6	24.0	55.6	57.2	51.5	52.1	51.8	45.2	39.6
June	60.8	86.9	52.7	23.6	55.4	58.6	52.6	53.1	52.8	45.6	42.0
July	62.5	86.6	55.3	24.4	57.0	60.2	54.9	55.1	55.0	47.5	43.4
August	63.6	86.9	57.0	25.6	59.0	62.3	55.1	57.1	56.2	51.2	42.9
September	60.6	86.8	55.9	26.1	58.6	61.8	53.3	56.0	54.7	48.4	39.1
October	60.5	86.9	58.0	26.8	62.7	65.9	56.7	58.1	57.4	49.2	38.8
November	59.9	87.2	58.6	27.1	63.5	66.5	57.0	57.9	57.4	49.6	37.5
December	55.3	86.3	55.6	26.0	60.7	60.6	54.2	53.8	54.1	46.6	33.9
1987 Average	**58.9**	**85.9**	**53.8**	**25.2**	**59.2**	**59.9**	**52.7**	**53.4**	**53.1**	**46.2**	**38.5**
1986 Average	**53.1**	**91.2**	**49.5**	**29.0**	**60.6**	**57.9**	**48.6**	**45.2**	**47.0**	**40.9**	**30.5**
1985 Average	**83.5**	**113.0**	**79.4**	**39.8**	**87.4**	**86.3**	**77.6**	**77.2**	**77.4**	**67.2**	**57.7**
1984 Average	**83.2**	**116.5**	**83.0**	**45.0**	**91.6**	**89.2**	**82.1**	**80.3**	**81.3**	**70.7**	**65.4**
1982 Average	**97.3**	**122.8**	**95.3**	**42.7**	**101.8**	**103.8**	**91.4**	**91.4**	**91.4**	**73.7**	**61.2**
1980 Average	**94.1**	**112.8**	**86.8**	**41.5**	**86.4**	**88.0**	**80.3**	**80.1**	**80.2**	**67.0**	**52.8**
1978 Average	**43.4**	**53.7**	**38.6**	**23.7**	**40.4**	**40.6**	**36.9**	**36.5**	**36.7**	**30.5**	**26.3**

(a) Includes No. 4 fuel oil and No. 4 diesel fuel.

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988, published March 1989. (Table 4).

Supplier Product Prices for End-Users

(¢ per gal., excluding taxes)

Year Month	Motor Gasoline	Aviation Gasoline	Kerosine-Type Jet Fuel	Propane (Consumer Grade)	Kerosine	No. 1 Distillate	No. 2 Distillate: No. 2 Fuel Oil	No. 2 Distillate: No. 2 Diesel Fuel	No. 2 Distillate: Average	No. 4 Fuel[a]	Residual Fuel Oil
1988											
January	64.3	88.0	56.2	72.7	84.1	58.8	62.1	54.0	55.9	50.5	36.7
February	62.8	87.9	54.8	75.2	84.7	55.5	60.0	51.8	53.4	51.3	35.6
March	62.4	87.8	53.9	73.1	77.5	56.6	57.6	51.3	52.3	46.6	32.9
April	66.0	87.6	52.1	68.9	82.2	60.0	58.5	53.8	54.5	48.5	32.4
May	68.4	89.9	53.0	64.4	61.2	58.8	55.5	53.7	53.9	43.9	33.8
June	68.1	87.2	52.7	69.5	55.4	56.0	49.3	50.8	50.6	43.5	33.6
July	69.9	90.3	50.3	70.7	56.0	52.3	46.3	47.3	47.1	42.5	32.3
August	71.8	93.0	49.1	68.8	56.3	53.2	47.7	47.3	47.3	41.9	33.2
September	70.0	91.7	48.4	69.9	66.1	54.6	48.3	47.3	47.4	42.9	32.1
October	68.0	89.4	46.3	69.4	71.8	53.5	48.0	45.4	45.7	41.6	30.5
November	67.6	89.6	47.5	71.5	71.1	54.7	51.5	47.4	48.1	43.3	32.3
December	66.2	89.4	51.1	73.5	74.1	57.0	58.1	50.5	52.0	46.3	34.3
1988 Average	**67.2**	**89.4**	**51.2**	**71.3**	**73.8**	**56.4**	**54.3**	**50.0**	**50.7**	**46.0**	**33.4**
1987											
January	59.7	87.9	45.9	73.3	82.8	57.8	58.3	50.7	52.2	51.8	42.0
February	62.1	89.7	49.2	74.1	80.4	56.7	58.9	51.7	53.2	51.5	41.2
March	62.7	90.3	50.0	72.5	82.0	55.9	55.1	51.0	51.8	48.0	40.0
April	64.9	89.8	51.0	71.4	78.2	56.1	55.0	51.5	52.0	49.1	42.0
May	66.3	90.6	52.4	71.2	66.8	55.3	54.7	53.3	53.4	50.8	43.4
June	67.7	91.3	53.4	65.8	59.8	56.6	54.7	54.3	54.4	51.1	44.8
July	69.6	91.5	55.7	64.6	60.4	57.6	56.6	56.3	56.4	52.8	46.4
August	71.6	92.4	58.2	67.4	60.2	63.8	57.9	58.1	58.1	52.9	45.0
September	70.5	91.9	58.3	66.6	77.0	63.3	56.3	57.0	56.9	49.4	41.7
October	69.7	91.4	59.5	65.4	78.8	65.4	60.7	59.5	59.7	52.8	41.9
November	69.4	91.0	59.9	71.1	83.1	67.4	63.2	60.4	60.9	54.1	42.1
December	67.4	90.0	58.2	71.7	87.9	62.8	63.0	57.3	58.5	52.4	37.8
1987 Average	**66.9**	**90.7**	**54.3**	**70.1**	**77.0**	**60.4**	**58.1**	**55.1**	**55.6**	**51.3**	**42.3**
1986 Average	**62.4**	**101.1**	**52.9**	**74.5**	**79.0**	**62.0**	**56.0**	**47.8**	**49.1**	**48.9**	**34.3**
1985 Average	**91.2**	**120.1**	**79.6**	**71.7**	**103.0**	**88.0**	**84.9**	**78.9**	**79.9**	**77.3**	**61.0**
1984 Average	**90.7**	**123.4**	**84.2**	**73.7**	**103.6**	**92.7**	**91.6**	**82.3**	**83.7**	**79.6**	**68.7**
1982 Average	**106.0**	**131.2**	**96.3**	**59.2**	**108.9**	**102.3**	**90.5**	**94.2**	**92.5**	**75.0**	**67.6**
1980 Average	**103.5**	**108.4**	**86.8**	**48.2**	**90.2**	**83.4**	**78.8**	**81.8**	**80.4**	**68.2**	**60.7**
1978 Average	**48.4**	**51.6**	**38.7**	**33.5**	**42.1**	**40.9**	**40.0**	**37.7**	**39.6**	**31.1**	**29.8**

(a) Includes No. 4 fuel oil and No. 4 diesel fuel.

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988, published March 1989. (Table 2).

Supplier Prices of No. 2 Distillate Fuel Oil

(¢ per gal., excluding taxes)

	Sales to End-Users						
	To Residential Consumers	To Commercial/ Institutional Consumers	To Industrial Consumers	Sales Through Company Outlets	To Other End-Users	Average	Sales for Resale
1988							
January	84.9	57.5	57.7	64.8	59.7	69.2	52.0
February	84.0	54.6	56.7	63.0	59.0	66.6	49.8
March	83.3	53.4	55.8	62.7	60.8	64.1	49.0
April	83.2	55.6	58.4	64.1	62.4	64.0	51.6
May	81.9	54.7	57.5	64.1	61.7	61.6	51.3
June	79.3	51.2	54.3	62.4	59.5	57.7	48.0
July	77.0	47.8	51.1	61.0	56.5	54.7	44.3
August	74.0	48.2	50.8	60.1	56.0	54.6	45.4
September	75.3	48.4	50.9	59.2	56.6	55.5	44.8
October	75.3	47.2	50.1	58.4	56.1	56.2	42.8
November	77.4	49.8	52.4	58.7	55.5	59.1	45.6
December	81.5	53.8	55.2	61.1	56.9	64.7	50.0
1988 Average	**81.4**	**51.9**	**54.1**	**61.6**	**58.4**	**61.2**	**48.1**
1987							
January	78.5	53.6	55.9	60.2	58.0	64.4	50.8
February	79.9	54.0	55.9	61.2	58.1	64.9	50.2
March	79.1	52.7	55.4	60.7	58.0	62.2	49.7
April	78.7	53.0	55.9	61.2	60.8	60.9	50.2
May	78.6	54.4	57.7	62.2	61.8	60.7	52.5
June	77.8	55.6	58.7	63.4	62.8	61.0	53.1
July	78.7	57.3	60.5	65.2	64.2	62.3	55.3
August	78.8	58.7	61.6	66.3	65.0	63.7	55.6
September	78.9	57.6	60.6	66.7	65.5	63.7	54.8
October	81.2	60.6	64.1	67.4	68.0	67.0	57.4
November	83.5	61.6	63.5	68.3	66.5	69.1	57.6
December	84.0	59.2	60.8	67.4	63.0	69.0	54.3
1987 Average	**80.3**	**56.6**	**59.7**	**64.4**	**63.1**	**64.3**	**53.5**
1986 Average	**83.5**	**51.4**	**53.7**	**59.8**	**56.9**	**61.4**	**48.0**
1985 Average	**105.3**	**82.1**	**83.4**	**88.6**	**85.3**	**89.0**	**78.1**
1984 Average	**109.1**	**85.7**	**87.0**	**92.0**	**89.2**	**92.6**	**81.9**

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988 published March 1989. (Table 15).

Supplier Prices of Residual Fuel Oil

(¢ per gal., excluding taxes)

	Residual Fuel Oil Sulfur Content Less Than or Equal to 1%		Residual Fuel Oil Sulfur Content Greater Than 1%		Average	
	Sales to End-Users	Sales for Resale	Sales to End-Users	Sales for Resale	Sales to End-Users	Sales for Resale
1988						
January	41.8	36.6	31.8	27.8	36.7	32.3
February	40.2	35.3	31.5	27.3	35.6	32.0
March	36.9	32.3	29.1	25.0	32.9	28.4
April	35.8	33.7	30.2	27.5	32.4	30.0
May	36.8	34.1	32.1	29.5	33.8	31.3
June	35.3	32.9	32.3	28.8	33.6	30.9
July	35.7	32.0	30.0	26.5	32.3	29.0
August	36.0	32.7	30.7	28.3	33.2	30.7
September	34.7	31.4	30.1	26.7	32.1	28.7
October	34.4	29.2	26.7	22.0	30.5	25.0
November	36.1	31.9	27.2	23.9	32.3	27.8
December	38.8	35.6	28.6	25.9	34.3	29.4
1988 Average	**37.2**	**33.3**	**30.0**	**26.6**	**33.4**	**29.7**
1987						
January	45.5	39.3	37.9	35.7	42.0	37.4
February	43.8	40.0	38.3	34.4	41.2	37.1
March	43.4	38.8	37.2	33.4	40.0	35.8
April	43.9	39.7	39.9	35.5	42.0	37.1
May	44.9	41.1	41.7	38.6	43.4	39.6
June	45.8	43.7	43.5	40.6	44.8	42.0
July	48.3	44.9	44.1	41.9	46.4	43.4
August	46.0	44.6	44.0	41.4	45.0	42.9
September	44.0	41.4	39.7	36.8	41.7	39.1
October	44.5	41.3	39.5	36.3	41.9	38.8
November	45.0	41.3	38.7	34.6	42.1	37.5
December	41.4	39.2	33.0	28.2	37.8	33.9
1987 Average	**44.7**	**41.2**	**39.6**	**36.2**	**42.3**	**38.5**
1986 Average	**37.2**	**32.8**	**31.7**	**28.9**	**34.3**	**30.5**
1985 Average	**64.4**	**61.0**	**58.2**	**56.0**	**61.0**	**57.7**
1984 Average	**72.0**	**68.5**	**65.9**	**63.9**	**68.7**	**65.4**
1982 Average	**74.7**	**69.5**	**61.1**	**57.2**	**67.6**	**61.2**
1980 Average	**67.5**	**60.8**	**52.3**	**47.9**	**60.7**	**52.8**
1979 Average	**46.8**	**45.0**	**38.9**	**36.6**	**43.6**	**39.9**

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988, published March 1989. (Table 17).

Residential No. 2 Prices for Selected States

(¢ per gal., excluding taxes)

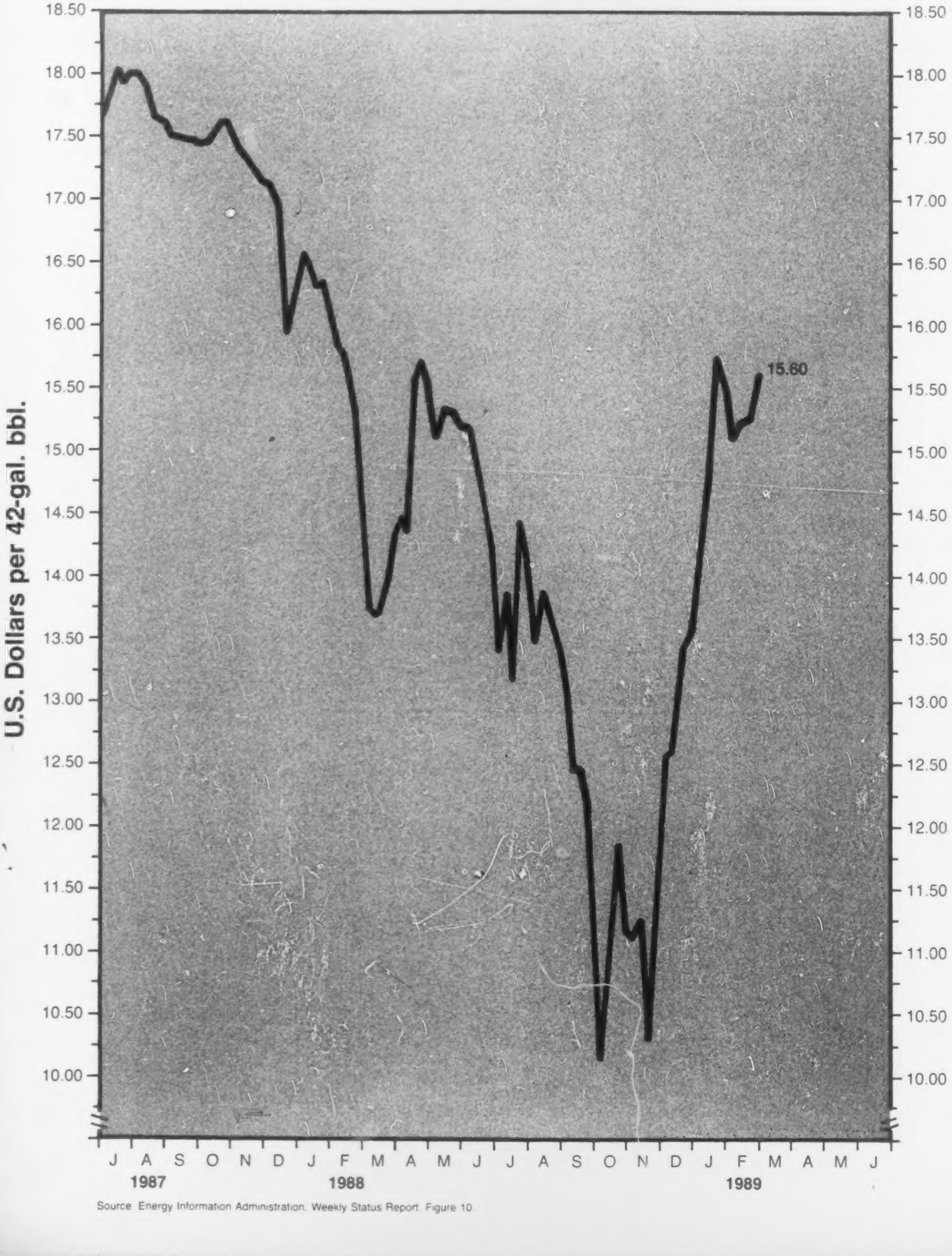
	Conn.	Maine	Mass.	N.H.	R.I.	Vt.	Del.	D.C.	Md.	N.J	N.Y.	Pa.	Va.
1988													
January	89.2	80.1	85.7	82.4	88.1	85.9	83.7	95.8	90.9	88.1	89.2	83.4	82.2
February	88.5	79.6	84.1	81.6	87.0	85.6	83.1	95.5	90.3	87.7	88.7	82.6	81.8
March	87.5	79.1	83.3	80.3	85.2	84.8	NA	92.8	88.2	86.7	87.5	81.6	82.6
April	88.1	78.6	83.1	79.0	85.6	85.3	82.8	90.8	89.1	85.7	86.7	81.1	82.8
May	86.6	77.5	82.4	78.3	85.1	84.9	82.3	91.9	87.9	85.4	85.0	79.7	81.7
June	86.6	75.4	77.7	79.3	81.6	83.4	80.9	90.4	86.8	82.5	83.6	75.3	79.1
July	83.6	73.3	76.2	76.5	76.3	81.4	73.4	84.8	85.0	80.9	82.1	71.6	77.4
August	81.9	75.7	74.1	73.7	79.7	81.5	73.5	84.6	84.2	78.6	78.3	64.5	77.1
September	80.8	71.8	79.2	74.0	79.7	77.5	71.1	84.7	76.1	75.7	81.1	68.9	76.0
October	79.9	69.0	77.8	71.9	76.7	76.4	70.4	83.1	78.0	77.8	81.2	70.1	75.0
November	80.5	72.0	78.0	73.1	80.1	77.2	73.5	84.5	81.4	78.8	83.3	72.4	77.2
December	84.4	79.1	82.8	78.0	84.2	80.8	79.2	88.6	85.1	84.0	87.9	77.4	79.7
1988 Average	**85.2**	**77.5**	**82.0**	**78.6**	**84.4**	**82.4**	**79.6**	**90.9**	**87.0**	**84.8**	**86.4**	**78.4**	**80.1**
1987													
January	**80.0**	**72.7**	**80.5**	**76.2**	**79.8**	**78.2**	**78.1**	**87.3**	**82.0**	**83.5**	**84.0**	**75.2**	**75.8**
February	**83.4**	**73.1**	**80.3**	**75.4**	**81.5**	**79.5**	**79.4**	**92.6**	**84.8**	**84.7**	**85.0**	**76.0**	**79.6**
March	**82.2**	**74.2**	**79.6**	**74.0**	**81.5**	**79.1**	**79.4**	**91.9**	**85.4**	**83.0**	**84.4**	**74.6**	**80.1**
April	**82.4**	**75.0**	**79.0**	**73.5**	**81.4**	**78.4**	**77.9**	**91.6**	**84.4**	**82.6**	**84.3**	**74.1**	**81.3**
May	**82.8**	**74.9**	**79.9**	**74.7**	**80.8**	**79.8**	**78.4**	**91.0**	**83.7**	**82.0**	**84.9**	**73.2**	**79.6**
June	**81.6**	**74.1**	**78.6**	**74.4**	**79.5**	**79.9**	**74.8**	**92.3**	**85.8**	**82.1**	**83.5**	**70.8**	**77.8**
July	**82.2**	**74.5**	**78.7**	**74.3**	**80.5**	**80.8**	**74.7**	**90.2**	**87.2**	**82.4**	**82.7**	**72.6**	**78.5**
August	**62.0**	**74.8**	**77.2**	**75.7**	**79.4**	**80.3**	**74.8**	**92.4**	**87.1**	**81.8**	**83.4**	**73.9**	**77.9**
September	**82.5**	**74.7**	**78.9**	**76.0**	**80.5**	**81.1**	**76.2**	**91.4**	**87.3**	**82.5**	**82.8**	**74.8**	**78.8**
October	**64.3**	**73.4**	**81.0**	**78.0**	**83.0**	**83.5**	**78.8**	**92.1**	**88.4**	**84.2**	**85.3**	**77.7**	**81.0**
November	**87.3**	**75.2**	**83.1**	**79.3**	**86.2**	**84.3**	**82.4**	**93.5**	**90.4**	**86.3**	**87.4**	**80.8**	**82.9**
December	**87.8**	**79.1**	**83.7**	**81.9**	**87.1**	**84.9**	**82.5**	**95.3**	**90.6**	**87.2**	**88.0**	**81.7**	**82.5**
1987 Average	**83.4**	**74.7**	**80.6**	**76.5**	**82.5**	**81.1**	**79.3**	**91.8**	**86.6**	**84.3**	**85.2**	**78.9**	**79.5**
1986 Average	89.0	74.4	82.1	75.9	82.8	86.6	85.0	93.1	91.4	90.2	91.1	81.4	86.6
1985 Average	108.0	99.7	107.0	102.4	106.7	107.7	104.6	114.3	108.8	105.9	111.3	102.3	106.3
1984 Average	112.1	103.9	111.6	108.4	111.4	111.9	109.6	118.7	113.5	111.0	115.5	107.9	110.5
1983 Average	109.1	102.8	109.1	104.1	110.5	112.9	106.0	117.0	110.3	107.9	112.1	105.8	108.7
1982 Average	118.3	115.5	117.6	117.4	120.1	120.1	111.3	124.5	117.1	117.4	120.5	113.7	117.7
1981 Average	121.7	120.4	121.3	123.7	123.8	125.4	117.3	127.4	121.4	121.5	123.2	118.1	120.5
1980 Average	98.3	96.3	97.8	100.4	101.1	101.5	95.4	102.6	97.9	97.9	98.2	96.4	98.5

	W.Va.	Ill.	Ind.	Mich.	Minn.	Ohio	Wis.	Idaho	Ark.	Ore.	Wash.	U.S. Avg.
1988												
January	78.7	85.4	79.9	81.6	76.9	76.7	77.2	74.5	88.4	75.9	82.8	84.9
February	76.0	86.1	76.9	80.8	75.7	76.5	76.4	72.3	87.4	75.0	82.1	84.0
March	75.5	86.1	76.7	78.4	78.4	76.5	76.1	70.8	89.1	74.3	81.9	83.0
April	75.3	87.4	79.6	78.6	78.6	77.3	78.1	73.6	88.8	74.4	82.5	83.2
May	73.6	85.7	77.0	77.0	74.5	74.7	76.6	72.7	89.4	74.8	82.4	81.9
June	71.8	82.9	78.9	73.7	73.6	72.4	74.3	70.5	87.8	74.0	77.6	79.3
July	70.5	83.8	73.8	73.4	75.8	70.0	72.9	67.6	85.4	66.6	72.7	77.0
August	67.9	80.5	73.7	74.0	72.3	69.2	71.4	64.5	85.4	64.4	69.8	74.0
September	68.9	67.6	69.5	74.6	72.3	71.4	69.4	67.5	88.2	64.7	73.7	75.3
October	71.4	68.6	71.0	76.7	70.7	71.1	67.8	66.8	86.6	62.5	70.4	75.3
November	74.1	70.6	72.1	75.3	72.4	73.5	69.9	66.6	85.7	62.3	72.7	77.4
December	74.4	73.0	75.1	76.6	72.4	75.6	71.7	66.3	86.0	63.4	75.0	81.5
1988 Average	**74.3**	**77.5**	**75.4**	**77.6**	**74.3**	**74.7**	**74.0**	**68.8**	**87.3**	**70.7**	**78.4**	**81.4**
1987												
January	**75.6**	**76.9**	**73.0**	**76.6**	**71.8**	**71.1**	**72.6**	**63.1**	**86.4**	**68.1**	**73.0**	**76.5**
February	**77.6**	**78.1**	**72.3**	**76.7**	**71.7**	**73.3**	**73.9**	**65.1**	**86.9**	**71.4**	**75.9**	**79.9**
March	**75.2**	**78.3**	**71.2**	**76.1**	**71.6**	**71.9**	**74.0**	**65.7**	**83.3**	**70.9**	**76.1**	**79.1**
April	**73.2**	**78.3**	**73.1**	**74.7**	**71.8**	**71.1**	**74.1**	**65.4**	**76.5**	**70.3**	**65.9**	**78.7**
May	**74.8**	**80.1**	**75.8**	**75.1**	**72.4**	**70.9**	**71.6**	**65.2**	**78.2**	**69.5**	**74.0**	**78.6**
June	**74.2**	**80.5**	**75.9**	**76.1**	**72.7**	**75.0**	**74.3**	**70.0**	**84.6**	**67.6**	**74.2**	**77.8**
July	**74.2**	**79.9**	**76.7**	**77.1**	**75.5**	**76.5**	**73.5**	**70.5**	**87.5**	**NA**	**77.4**	**78.7**
August	**75.6**	**83.7**	**77.1**	**77.4**	**75.9**	**73.4**	**74.5**	**74.9**	**88.7**	**NA**	**79.3**	**78.8**
September	**74.2**	**79.4**	**77.1**	**77.4**	**74.4**	**74.6**	**74.3**	**77.3**	**89.5**	**77.1**	**81.2**	**78.9**
October	**74.9**	**87.3**	**79.4**	**78.1**	**78.9**	**76.9**	**77.5**	**76.3**	**92.6**	**75.1**	**82.8**	**81.2**
November	**78.3**	**88.2**	**80.8**	**80.9**	**79.7**	**79.1**	**79.3**	**77.3**	**92.3**	**74.7**	**84.3**	**83.5**
December	**80.5**	**85.2**	**79.6**	**80.2**	**77.0**	**78.7**	**78.4**	**76.8**	**90.6**	**75.8**	**84.8**	**84.0**
1987 Average	**76.4**	**79.8**	**75.4**	**77.5**	**74.8**	**74.7**	**75.1**	**68.8**	**86.5**	**72.5**	**79.5**	[illegible]
1986 Average	74.6	NA	74.8	81.0	79.2	77.7	75.6	73.8	94.9	70.4	77.5	83.6
1985 Average	98.0	97.5	99.1	102.1	101.9	99.7	98.3	97.2	108.3	97.1	101.1	105.3
1984 Average	102.1	100.1	103.1	105.0	104.1	102.1	101.0	98.5	106.9	99.3	102.6	109.1
1983 Average	101.0	100.4	100.7	106.4	103.1	101.3	101.2	101.8	108.8	103.6	109.0	107.8
1982 Average	109.3	110.9	114.3	113.9	115.1	110.2	107.8	110.4	117.4	111.6	117.6	116.0
1981 Average	115.0	114.9	118.5	118.3	118.4	113.2	109.1	110.4	118.0	111.4	116.5	119.4
1980 Average	92.2	95.8	99.6	97.8	99.9	91.9	91.5	91.6	97.8	97.3	100.8	97.4

Source: Energy Information Administration, Petroleum Marketing Monthly, December 1988, published March 1989. (Table 16).

World Crude Oil Price Trends

(Average price (FOB), internationally traded only, weighted by estimated volume)



Source: Energy Information Administration, Weekly Status Report, Figure 10

Spot Market Product Prices

($ per bbl.)

		Motor Gasoline		Gasoil/Heating Oil		Residual Fuel Oil	
		Rotterdam Leaded Premium (98-Octane)	New York UnleadedRegular (87-Octane)	Rotterdam (0.3% Sulfur)	New York (0.2% Sulfur)	Rotterdam (1% Sulfur)	New York (1% Sulfur)
1989							
Jan.	6	20.16	20.31	21.25	23.04	14.94	16.65
	13	19.93	21.11	21.98	23.04	14.79	16.35
	20	20.40	22.16	21.05	23.21	15.32	16.15
	27	20.40	21.21	20.17	21.78	15.17	15.50
Feb.	3	20.81	21.00	19.64	22.47	14.56	15.00
	10	21.51	20.10	18.97	21.25	14.56	14.50
	17	21.16	19.95	18.97	21.36	14.49	14.00
	24	21.45	20.48	19.17	21.74	14.04	14.75
1988							
Jan.	1	18.93	18.42	20.71	21.63	13.06	15.00
	8	19.40	19.22	21.44	23.10	14.56	16.40
	15	18.58	18.90	19.90	22.26	14.48	16.90
	22	18.34	18.84	19.77	20.79	14.11	15.25
	29	17.81	18.90	18.69	20.58	13.51	14.50
Feb.	5	18.87	19.32	18.96	21.13	12.91	14.75
	12	19.10	19.26	18.76	20.69	12.91	14.75
	19	19.46	19.01	18.36	19.43	12.91	14.50
	26	20.22	18.90	18.02	19.11	12.61	14.50
Mar.	4	19.87	18.38	17.62	19.26	12.01	13.75
	11	19.05	18.48	17.76	19.32	11.56	12.75
	18	19.10	18.94	17.42	19.53	11.26	12.75
	25	19.46	19.64	18.76	20.85	11.86	13.00
	31	19.75	20.31	18.96	20.58	12.23	13.25
Apr.	8	19.98	20.37	18.90	20.06	12.53	13.00
	15	20.75	21.95	20.44	21.74	13.36	13.75
	22	21.86	21.78	20.98	22.57	13.96	14.05
	29	22.10	21.53	21.11	22.68	14.41	14.60
May	6	21.57	21.31	19.30	21.25	12.91	14.50
	13	22.57	22.15	19.24	21.52	13.29	14.15
	20	22.80	22.26	19.44	21.21	12.84	14.00
	27	22.04	22.05	18.83	20.79	12.24	14.00
June	3	22.80	22.20	19.10	20.52	12.91	14.25
	10	22.04	21.42	18.70	19.11	12.91	14.00
	17	22.22	21.84	18.03	18.63	12.16	13.75
	24	21.86	22.05	18.16	18.48	12.31	13.75
July	1	21.40	22.37	17.36	17.22	12.16	13.50
	8	21.10	24.00	17.56	17.85	12.01	14.00
	15	21.22	23.25	16.96	16.97	12.16	13.95
	22	21.28	23.46	18.16	18.98	13.06	14.50
	29	21.40	21.74	18.50	18.59	13.21	14.60
Aug.	5	20.87	20.06	17.43	17.75	12.31	14.25
	12	20.16	19.74	17.83	18.48	12.61	14.00
	19	20.16	20.41	17.69	18.33	12.76	14.25
	26	20.98	19.74	17.56	17.64	12.76	14.00
Sept.	2	20.63	19.85	17.16	18.06	12.46	13.75
	9	19.87	18.90	16.49	17.33	11.41	13.00
	16	19.87	19.95	16.76	17.68	11.56	13.00
	23	19.99	19.99	16.29	17.12	11.41	12.85
	30	19.75	19.99	15.82	16.38	11.04	12.65
Oct.	7	18.46	18.80	14.34	15.54	9.61	11.75
	14	18.58	20.58	15.28	17.22	10.06	12.50
	21	19.64	22.58	16.29	18.17	11.41	13.40
	28	21.34	22.58	15.88	18.17	11.49	12.75
Nov.	4	21.22	22.05	16.82	18.63	11.79	14.00
	11	21.16	23.84	16.82	18.48	12.39	14.00
	18	21.69	22.16	16.55	18.10	12.91	14.00
	25	21.28	20.90	17.43	19.11	12.39	14.00
Dec.	2	21.63	21.42	19.30	20.79	13.89	15.10
	9	20.57	19.15	19.64	20.27	13.29	14.85
	16	20.40	19.11	20.24	21.46	13.74	15.00
	23	20.16	19.95	20.44	22.09	14.11	15.80
	30	20.52	20.06	20.71	22.20	14.49	16.50

Source: Energy Information Administration, Weekly Petroleum Status Reports, Table 13.

International Prices for Gasoline and Fuel Oil

(U.S. $ per gal. for gasoline, pump retails, all taxes included. U.S. $ per gal. for distillate and kerosine but $ per bbl. for residual oil; all taxes are included except for U.S. fuel oils.)

	1/1/88					1/1/87				
	Automotive Fuels		Residential			Automotive Fuels		Residential		
Country	Leaded Premium Gasoline	Diesel Fuel	Distillate	Kerosine	Industrial Residual	Leaded Premium Gasoline	Diesel Fuel	Distillate	Kerosine	Industrial Residual
WESTERN HEMISPHERE										
Argentina	$1.24	$.56	$NA	$.53	$12.68	$1.83	$0.68	$NA	$0.79	$18.11
Bolivia	1.18	.91	NA	.76	NA	1.14	1.18	NA	.85	NA
Brazil	2.18	.94	NA	.95	16.67	2.94	1.92	NA	1.07	NA
Canada	1.52	1.43	.94	1.43	15.46	1.30*	1.26	$0.76	1.34	13.19
Chile	NA	NA	NA	NA	NA	1.23	.95	NA	.80	21.71
Columbia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dominican Republic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ecuador	NA	NA	NA	NA	NA	.44	.27	NA	.10	20.65
El Salvador	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jamaica	5.52	1.64	NA	.66	15.93	1.65	1.20	.73	.68	22.76
Mexico	.99	.77	.23	.52	7.34	.71	.61	.18	.30	15.51
Panama	1.98	1.19	NA	1.10	15.37	NA	NA	NA	NA	NA
Paraguay	3.50	1.80	NA	2.18	47.70	5.03	2.60	NA	3.15	69.44
Peru	1.02	.38	NA	.11	13.62	1.50	.92	NA	.24	33.56
United States	.91	.96	.62	.84	15.92	.82*	.87	.73**	.83**	12.18**
Uruguay	2.58	1.49	1.16	1.37	27.54	2.29	1.31	1.03	1.21	24.33
Venezuela	.39	.09	NA	.13	2.19	.75	.18	NA	.32	5.30
WESTERN EUROPE										
Austria	2.86	2.12	1.27	NA	NA	2.64	1.98	1.25	NA	NA
Belgium	2.57	1.39	.74	.58	13.72	2.37	1.30	.72	.62	16.26
Denmark	3.72	1.05	2.27	1.78	18.97	3.58	2.29	2.22	1.82	20.00
Finland	3.11	1.89	.89	NA	22.43	2.64	1.83	.82	1.05	21.42
France	3.08	1.93	1.20	NA	15.28	2.95	1.91	1.20	NA	20.21
Germany, West	2.18	1.75	.71	NA	16.10	2.09	1.67	.74	NA	18.12
Greece	2.15	1.05	1.05	NA	26.74	2.16	1.05	1.05	NA	28.52
Ireland	3.39	2.42	1.23	NA	22.92	3.24	2.28	1.18	NA	26.54
Italy	4.09	1.77	1.86	NA	12.99	3.71	1.55	1.63	1.56	15.60
Luxembourg	2.04	1.28	.75	NA	16.73	1.94	1.23	.78	.68	17.60
Netherlands	3.01	1.36	1.09	NA	19.91	2.84	1.37	1.14	NA	20.93
Norway	2.89	1.14	1.05	1.12	NA	2.72	1.09	1.00	1.08	24.16
Portugal	3.25	1.95	2.02	1.89	24.07	2.98	1.69	1.75	1.73	19.53
Spain	2.58	1.71	1.12	1.70	18.74	2.28	1.51	.99	1.70	16.57
Sweden	2.68	1.64	1.11	NA	36.68	2.39	1.47	1.10	NA	39.88
Switzerland	2.53	2.61	.68	NA	18.02	2.38	2.46	.71	NA	20.91
Turkey	1.36	1.01	.72	1.04	26.46	NA	NA	NA	NA	NA
United Kingdom	2.43	1.95	.78	NA	17.48	2.24	1.77	.82	NA	21.01
Yugoslavia	2.04	1.66	NA	.76	18.81	2.03	1.62	.90	.81	18.07
MIDDLE EAST										
Israel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Saudi Arabia	.54	.12	NA	.21	47.67	.35	.12	NA	.20	NA
AFRICA										
Ethiopia	2.35	1.44	1.31	1.19	41.47	2.40	1.44	1.21	1.20	41.48
Ghana	1.11	1.06	NA	.80	22.95	NA	NA	NA	NA	NA
Kenya	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moroco	2.94	1.68	NA	1.51	34.44	NA	NA	NA	NA	NA
South Africa	NA	NA	NA	NA	NA	1.50	1.47	.96	.71	29.75
Tunisia	2.22	NA	.85	.71	16.96	2.08	NA	1.15	.65	16.42

Continued.....

(Continued......)

International Prices for Gasoline and Fuel Oil

(U.S. $ per gal. for gasoline, pump retails, all taxes included. U.S. $ per gal. for distillate and kerosine but $ per bbl. for residual oil; all taxes are included except for U.S. fuel oils.)

	1/1/88					1/1/87				
	Automotive Fuels		Residential			Automotive Fuels		Residential		
	Leaded					Leaded				
ASIA PACIFIC										
Australia	1.51	1.31	NA	NA	NA	1.41	1.25	NA	NA	NA
Burma	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indonesia	1.00	.45	.51	.37	NA	NA	NA	NA	NA	NA
India	2.15	1.01	NA	.65	33.21	2.17	1.01	NA	.65	33.51
Japan	3.49	2.08	1.12	1.13	30.57	2.89	1.80	1.10	1.08	22.00
New Zealand	2.31	1.69	1.75	NA	38.06	1.69	1.27	1.27	NA	27.73
Pakistan	1.67	.83	NA	.65	11.42	1.67	.84	NA	.66	13.66
Philippines	1.39	.97	.52	.98	NA	1.28	.88	NA	.89	1[illegible].46
Singapore	1.75	.78	NA	.64	10.40	1.66	.67	NA	.55	15.55
Sri Lanka	1.66	1.00	NA	.81	19.19	1.79	1.07	NA	.87	20.71
Thailand	1.34	.95	.47	.92	18.53	1.30	.92	.47	.89	15.80

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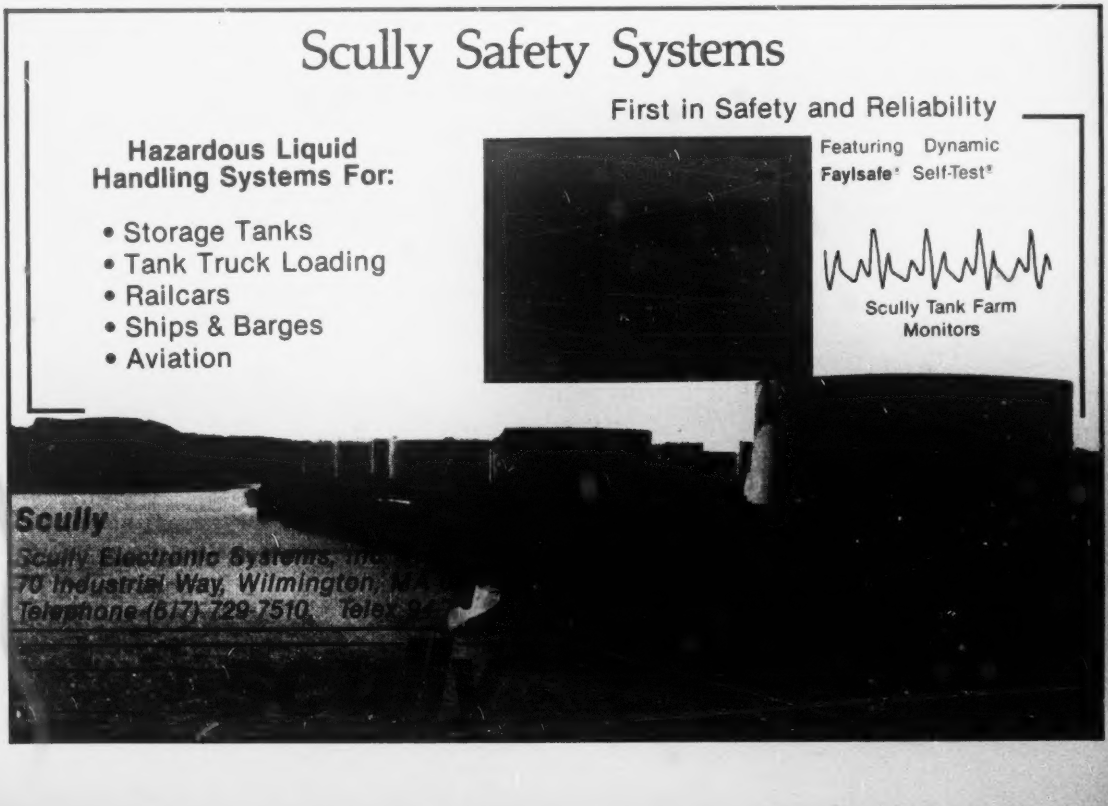
*Unleaded regular grade gasoline in Canada and U.S., unleaded premium in all other countries; ** Excludes taxes, all other countries include taxes in distillate, kerosine and residual prices; NA = Not available or not reported.

Source: International Energy Annual 1986, Energy Information Administration; gasoline and fuel oil prices are for the capital cities of each country except those of the U.S., which are the national average for the periods quoted.



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How Many Gasoline Stations Are There? Does Anyone Really Know?

For an industry that can, at the drop of a hat, come up with an endless array of disa and data about itself and its operations—how many millions of barrels of crude oil it produces, how many it refines, how many billions of gallons of gasoline it sells and how many zillions of dollars it generates, ad infinitum, ad nauseum—there's one elusive statistic that has yet to be captured and supported in documentable fashion.

Neither the mega-billion dollar oil industry, nor the federal government—nor anyone else for that matter—can provide accurate information on the number of retail gasoline outlets there are in this country. Incredible as it may seem, this is an industry so big and so powerful that it dominates the national economy yet it cannot verify the number of places where its prime product, gasoline, is sold daily.

Some oil companies can come up with tallies of their own branded distributors; some states—but not more than half of them at the most—can provide licensing registration data; some associations can offer "guesstimates." But nowhere is there a population count which is accurate and comparable, i.e., supportable totals of the service stations, the convenience stores with gasoline, the car washes, the dealerships, garages and other repair centers—all of the places, in substance, which regularly sell gasoline to the public.

A fast once-over of the gasoline station population from Maine to Florida recently confirms what many marketing people have long suspected—there seems to be a lot more places peddling gasoline than most industry reports generally account for.

As a matter of fact, if the East Coast statistics collected by NPN are a real reflection of the nation as a whole, there has to be at least twice as many gasoline stations in business nationally than current data and educated guesses indicate.

300,000 Outlets?

In other words, a more reasonable estimate of the U.S. total—based on the NPN East Coast survey made in late March and early April—would have to be at least 300,000 gasoline outlets, give or take. These are places that anybody can buy gasoline—be they service stations, convenience stores, car washes, garages and what-have-you.

By way of comparison, U.S. Census Bureau numbers plus modifications to bring them up to date, plus "guesstimates" for the convenience store world, would have you believe that this total was only 150,000 at the end of 1988. This is what the industry is currently using as its best ballpark estimate.

The hard truth, however, is that nobody but nobody really knows at this time exactly how many gasoline outlets there are in the U.S. One industry executive facetiously remarked "that's a number that even the Good Lord Himself might have trouble coming up with."

It may or may not be somewhat of a surprise to some industry people to learn that many states, if not most of them, simply do not keep records or have files that would show solid data on gasoline station outlets in their provinces. This applies to the limited world of "true service stations" as defined by the U.S. Department of Commerce and the C-store field where an estimated 50% of 80,000 places sell gasoline as a sideline.

A few states, like North Carolina, do excellent jobs in their record keeping. North Carolina, for example, keeps and updates annually not only its totals for gasoline outlets but also its specific numbers on gasoline, diesel and kerosine dispensers. The North Carolina statistics are on a county-by-county basis as well.

Almost parenthetically, it should be noted that if one state can do this, it seems incredible then that the format can't be duplicated elsewhere in an industry which counts in the hundreds of billions at one end of the spectrum uses fractions of a cent and tenths of a gallon at the other end.

In a fresh endeavor to get a better grip on the gasoline station population on the East Coast, NPN recently contacted all of the national organizations which conceivably might have such data: American Petroleum Institute, Petroleum Marketers Assn. of America, American Automobile Assn., National Highway Users Foundation, Service Station Dealers of America, to name a few. Government agencies, including the Environmental Protection Agency which can estimate how many storage tanks there are above and below ground but not how many gasoline stations there might be as well, also were queried. Most commented, in effect, "If you can find anybody who has such information, let us know; we'd like to have it too."

Numbers the Hard Way

To push the issue as far as possible, NPN contacted authorities in 16 Atlantic Seaboard states, posing the same question to industry spokesmen and associations, then to the state governments—making, in the process, as many calls as were necessary to find someone somewhere who could come up with an official figure or a reasonable guess in each state.

The best number, as indicated above, came from North Carolina, which had detailed statistics on everything. Delaware, Florida, Georgia, Maryland and South Carolina also had official numbers that were based on registrations or other required information related to weights and measures, consumer services, divorcement and below cost marketplace competition and so on.

The New England and Mid-Atlantic States generally had nothing official available and relied mostly on "best estimates" by state departments or state retailer associations. A surprising aspect of this was that while the state retailer associations could supply numbers quickly for their own areas the national organization had no compilations of any kind.

Here's the East Coast rundown com-

Comparable U.S. Census Bureau Data (a)

	1982	1977	1972	% Chng. '82 v '77	% Chng. '82 v '72
No. of stations (b)	116,154	147,618	183,365	-21.3%	-19.5%
Total sales ($000,000)	$94,832	$53,749	$31,440	76.4	71.0
Average per station	$816,433	$364,108	$171,461	124.2	112.4
No. of employees	604,286	672,673	747,668	-10.2	-10.0

(a) Censuses are made every five years. Normally, the count includes stations with payrolls and those without payrolls, i.e., the 'moms and pops' and small family operations. In 1982, the Census Bureau overlooked the stations without payrolls, however, so the comparisons in this table are for stations with payrolls, which represented about 81% of the population in 1972 and 83% of the population in 1977. A new Census was made in 1987, but the details are not expected to be released until late 1988 or early 1989. (b) Stations are those which, by Census Bureau definition, generate 50% or more of their sales dollars from gasoline.

Source: U.S. Department of Commerce, Census of Retail Trade for 1982, 1977 and 1972.

State	Number of Outlets	Source of Information
New England		
Maine	1,000	Retailer Assn.
New Hampshire	1,050	Retailer Assn.
Vermont	856	Retailer Assn.
Massachusetts	2,500	Retailer Assn.
Connecticut	2,000	Industry Assn.
Rhode Island	602	State Estimate
Mid-Atlantic		
New York	7,100	Retailer Assn.
New Jersey	4,000	Retailer Assn.
Pennsylvania	6,000	Retailer Assn.
Maryland	2,450	State Data
Dist. of Col.	134	Retailer Assn.
South Atlantic		
Delaware	523	State Data
N. Carolina	11,759	State Data
S. Carolina	5,300	State Data
Virginia	8,000	State Estimate
Georgia	8,525	State Data
Florida	10,531	State Data
Total	72,330	

piled by NPN (table at left):

The U.S. Census Bureau surveys the retail trades every five years. Its last nose count was in 1987 and the statistics are only now becoming available (See related item in this section). But the problem here is that the Census Bureau counts as service stations only those that generate more than 50% of their revenues from gasoline and oil products. The count is even stickier now because the Census Bureau, more through accident than by design, now counts only those stations that have payrolls. About 10% to 15% of the smaller stations are in a limbo of their own as a result. Also not counted are the thousands of convenience stores with gasoline, garages, car washes, dealerships, et al, etc. Many people do not realize it but even the Census Bureau uses estimates in the fringe areas rather than actual counts. This affects about 15% to 20% of the service station world.

Government and industry lost one of its measuring sticks at the end of 1988 when a decision was made to abandon publication of the annual "Franchising in the Economy" report to save money. Although it was focused primarily on franchised businesses, it nevertheless provided some interesting percentage projections on service stations and their sales dollars.

Gasoline station numbers are becoming increasingly important in the light of environmental controls, storage tanks, skyrocketing insurance policies, Stage 2 equipment and so on. Some industry observers have long been wondering whether the time isn't ripe now for a cooperative industry and government project that would produce realistic state and national numbers for a change.

The 1987 Retail Census: The First Returns Show Up At Last

In 1987, the U.S. Census Bureau fulfilled a mandate from Congress—it took its five-year nose count of the retail trade businesses. The first returns are now being tallied and published as rapidly as the agency can handle them. The first state report (Arizona) was issued in March; Colorado followed in April and the balance are expected to be released by the end of the year, in whatever order they can get through the printing machinery.

There are some things to bear in mind in evaluating the 1987 census reports:

1. These are "true" service stations with 50% or more of their sales dollars coming from gasoline and oil products. Not included in this count are C-stores with gasoline and other vendors where gasoline is a secondary source of revenue.

2. This count, as did the 1977 count, takes into consideration only those stations that have payrolls. Automatically excluded are the privately owned and operated "family" stations, nominally known as "Moms and Pops." Census says it hopes to have a special report on the small stations later this year or perhaps in 1990 when all the other work is done.

3. The 1987 census took a step in a new direction which could play an important role in this and future censuses. In bygone years, the service station count was effectively as of the end of the year. The 1987 census provides two sets of figures: one, the traditional yearend report; and two, the greatest number of outlets at any given time in that calendar year (in other words, the peak number). Census says the second number will be the standard number in the future. The yearend number will be dropped in the 1992 census. This will make comparisons between 1992 and most earlier figures impossible.

Here are the Census Bureau data for the early returnees:

Service Stations in Business

	Anytime during the year			At the end of the year		
	1987	1982	% Change	1987	1982	% Change
Alaska	214	188	13.8%	184	176	4.5%
Arizona	1,151	1,204	(4.4)	1,241	1,320	(6.0)
Colorado	1,568	1,787	(12.3)	1,455	1,570	(7.3)
Idaho	558	552	1.0	NA	NA	NA
Montana	548	569	(3.7)	493	522	(5.6)
Nevada	441	519	(15.0)	387	476	(18.7)
New Mexico	696	854	(18.5)	644	770	(16.4)
Utah	849	890	(4.6)	780	842	(7.4)
Wyoming	415	459	(9.6)	384	430	(10.7)

Other Significant Data

	Sales			Annual Payroll			Employees		
	1987	1982	% Chng	1987	1982	% Chng	1987	1982	% Chng
	(Add $000,000)			(Add $000)			(Number)		
Alaska	$ 179	$ 206	(12.8)%	$ 16,510	$15,684	5.3%	1,197	1,219	(2.0)%
Arizona	1,584	1,306	21.3	100,687	62,277	61.7	10,430	7,544	38.3
Colorado	1,533	1,430	7.2	96,955	70,850	36.8	10,145	9,404	7.9
Idaho	444	353	25.8	26,059	16,753	55.5	3,202	2,408	33.0
Montana	403	388	4.9	25,769	21,201	21.5	2,985	2,864	4.2
Nevada	523	564	(7.4)	41,050	31,843	28.9	4,462	3,592	24.2
New Mexico	640	614	4.3	39,822	31,647	25.8	4,510	4,159	8.4
Utah	710	657	8.0	41,376	31,218	32.5	5,450	4,392	24.1
Wyoming	305	399	(23.5)	22,064	22,842	(3.4)	2,363	2,475	(4.5)

Gasoline Shares by Key Categories—1988

A new study of retail gasoline market shares was introduced in 1985 by MPSI Americas Inc., a Tulsa, Okla. firm specializing in international computer software and information services as well as market research and planning. Now, MPSI has released its updated study covering the year 1988.

Included with the data on regional and national market shares for 1988 (see table below) are the comparable data for 1987. This comparison offers indications of the trends within the various marketing segments.

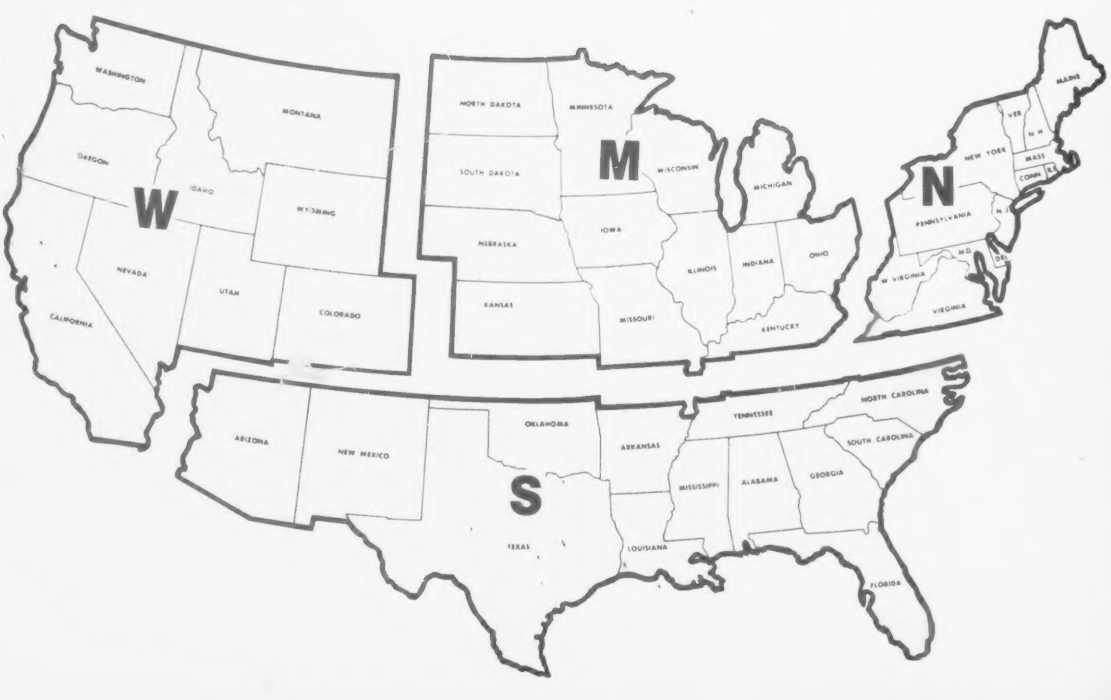
The study breaks out, on both a national and regional basis, market shares and percentage of outlets for conventional service stations, volume pumpers, convenience stores that sell gasoline, plus a catch-all category of "others" including car washes, garages and other facilities.

This study involves primarily the metropolitan areas of the U.S. where most gasoline is marketed. No attempt was made to count rural vendors or highway units, which, while important to the industry, do not add significantly to overall consumption.

Regional and National Market Shares

	Service Stations		Pumpers		Convenience Food Stores		Others		Total	
	1988	1987	1988	1987	1988	1987	1988	1987	1988	1987
Northeastern Region										
• % of Outlets	64.9	58.7	19.7	24.4	5.0	5.2	10.4	11.7	100.0	100.0
• % of Volume	58.0	52.4	36.6	00.0	2.8	2.9	2.6	3.0	100.0	100.0
• Avg. Monthly Volume (Gallons)	58.378	58.914	120.998	124.883	36.762	37.807	16.048	16.766	65.252	63.375
Midwestern Region										
• % of Outlets	38.4	39.0	42.5	39.9	7.2	8.6	11.9	12.5	100.0	100.0
• % of Volume	31.3	32.6	61.6	58.1	4.1	6.0	3.0	3.3	100.0	100.0
• Avg. Monthly Volume (Gallons)	58.959	59.152	104.937	105.714	41.472	46.202	18.154	19.059	72,369	72.751
Sunbelt Region										
• % of Outlets	25.3	27.2	32.2	30.0	31.3	30.2	11.2	12.6	100.0	100.0
• % of Volume	24.3	26.8	56.5	54.0	15.5	15.2	3.7	4.0	100.0	100.0
• Avg. Monthly Volume (Gallons)	55.853	57,045	101,761	000.000	28,734	28,995	18,902	18,646	58,029	57,916
Western Region										
• % of Outlets	48.3	52.9	32.2	31.9	10.6	7.1	8.9	8.9	100.0	100.0
• % of Volume	46.3	45.1	46.4	48.3	4.9	4.3	2.4	2.3	100.0	100.0
• Avg. Monthly Volume (Gallons)	60.868	56,100	113.735	114.870	36.769	36.850	21,560	20,907	79.108	69,515
Total United States										
• % of Outlets	42.2	43.7	30.9	29.6	16.3	15.2	10.6	11.5	100.0	100.0
• % of Volume	39.3	40.9	50.0	48.7	7.7	7.2	3.0	3.2	100.0	100.0
• Avg. Monthly Volume (Gallons)	58.021	56.983	108.226	[illegible]106	31.387	31.780	18.552	18.656	66.740	65.079

Source: MPSI Americas, Inc., Tulsa, Oklahoma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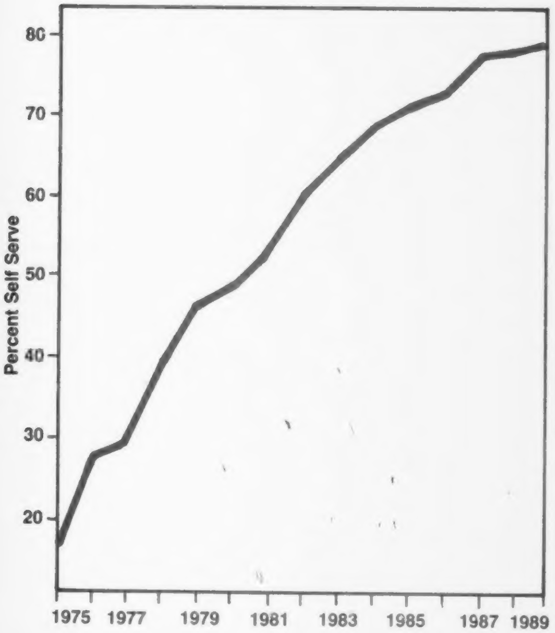
Self Serve Increases

American motorists continue to choose self sevice over full service when purchasing gasoline. Since 1975, self service gasoline sales have consistently increased at record rates from 22% to 80% last year, according to Amoco Oil Co. marketing research.

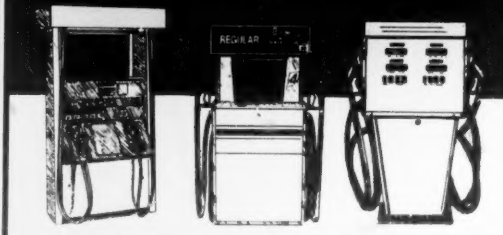
The market share for self serve last year jumped one percentage point from the previous year and represents an increase of more than six percentage points since 1984.

U.S. Self-Serve Motorist Gasoline Market Share (%)



State [a]	1989	1988	chg.	State [a]	1989	1988	chg.
Alabama	82%	80%	-2	Montana	90	88	-2
Arizona	92	93	+1	Nebraska	81	80	-1
Arkansas	83	83	NC	Nevada	94	93	-1
California	90	91	+1	New Hampshire	60	65	+5
Colorado	92	92	NC	New Mexico	90	92	+2
Connecticut	71	72	+1	New York	58	58	NC
Delaware	86	86	NC	North Carolina	86	89	+3
D.C.	87	85	-2	North Dakota	73	79	+6
Florida	90	91	+1	Ohio	86	85	-1
Georgia	88	89	+1	Oklahoma	86	84	-2
Idaho	88	86	-2	Pennsylvania	64	66	+2
Illinois	87	88	+1	Rhode Island	63	65	+2
Indiana	86	88	+2	South Carolina	88	89	+1
Iowa	85	85	NC	South Dakota	75	78	+3
Kansas	80	84	+4	Tennessee	84	83	-1
Kentucky	79	79	NC	Texas	91	91	NC
Louisiana	90	91	+1	Utah	94	94	NC
Maine	47	52	+5	Vermont	55	58	+3
Maryland	86	86	NC	Virginia	87	89	+2
Massachusetts	50	49	-1	Washington	90	91	+1
Michigan	85	87	+2	West Virginia	74	78	+4
Minnesota	82	84	+2	Wisconsin	87	89	+2
Mississippi	83	79	-4	Wyoming	86	83	-3
Missouri	81	83	+2	All States	79	80	+1

Note: Self-Serve is illegal in New Jersey and Oregon.
Source: Amoco Oil, Monthly Survey.



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Business at Service Stations

Dollar Volume and Product Sales

					Gasoline		Motor oil	
Year	No. of service stations(a)	Total sales (add 000,000,000)	Avg. sales per station (add 000)	Passenger car population (add 000)	Avg. gal. consumed per car per year	Total consumption (add 000,000 gal.)	Qts. per year	Sales (add 000,000 qt.)
1988	112,000	$ 91.9	$821	142,209	NA	NA	—	—
1987	115,870	89.2	770	140,693	515(b)	72,457(b)	—	—
1986	120,510	86.6	719	135,431	525(b)	71,101(b)	—	—
1985	124,600	100.8	809	131,864	525(b)	69,229(b)	—	—
1984	132,080	101.0	765	128,270	536(b)	68,914(b)	—	—
1983	136,570	103.1	755	126,727	553(b)	70,080(b)	--	—
1982	144,690	106.2	733	123,746	566(b)	70,040(b)	7.3	907
1981	151,250	101.7	672	123,462	576(b)	71,114(b)	7.3	909
1979	164,790	70.9	430	120,248	653(b)	78,522(b)	7.3	880
1977	176,465	56.5	320	113,696	716(b)	81,406(b)	7.9	900
1975	189,480	43.8	232	106,712	716(b)	76,406(b)	9.5	1,014
1972(c)	226,459	33.7	149	96,567	785(b)	75,805(b)	10.0	966

(a) Franchising in the Economy 1986-88, Dept. of Commerce; by definition of Census Bureau these are stations that get 50% or more of gross sales from petroleum products; (b) In September 1987, Federal Highway Administration revised its gallonage consumption data and re-calculated the averages back to 1970, thus these figures are not comparable with prior data in *NPN Factbook*; (c) Peak year for service stations.

Sources: Franchising in the Economy, 1986-1988; Federal Highway Administration and *NPN*.

Station Customers

		Privately owned passenger cars		Households owning cars		Licensed drivers		Women drivers	
Year	No. of service stations(a)	Total (add 000)	Avg. per station	Total (add 000,000)	Avg. per station	Total (add 000,000)	Avg. per station	Total (add 000,000)	Avg. per station
1988	112,000	142,209	1,270	78.0	696	164.2	1,466	78.9	704
1987	115,870	139,041	1,200	77.0	665	161.8	1,396	77.8	671
1986	120,510	135,431	1,124	76.0	631	159.4	1,323	76.2	632
1985	124,600	132,108	1,060	75.0	602	156.9	1,259	75.3	604
1984	132,080	128,270	971	74.0	560	155.4	1,176	74.3	562
1983	136,570	126,727	927	73.0	534	154.2	1,129	73.4	537
1982	144,690	123,746	855	72.0	497	150.3	1,038	71.7	491
1981	151,250	123,462	816	70.0	460	147.0	969	69.2	457
1979	164,790	120,248	731	65.9	400	143.3	868	66.8	403
1977	176,465	113,696	644	63.3	365	138.4	784	63.7	361
1975	189,480	106,712	563	60.5	319	127.8	662	56.8	294
1972(b)	226,459	96,567	426	52.8	232	118.4	522	52.6	232

(a) Franchising in the Economy 1986-88, Dept. of Commerce; Bureau of Census definition of service stations: 50% or more of dollar volume comes from the sale of petroleum products;
(b) Peak year.

Sources: Based on data from Motor Vehicle Mfgs. Assn , Federal Highway Administration and *NPN*.

How Stations Rank in Sales (Billions of Dollars)

	1988	% Change '88-'87	1987	% Change '87-'86	1986	% Change '86-'85	1985	% Change '85-'84
All Retail Stores	1,612.0	6.7%	1,510.6	5.1%	1,437.5	4.2%	1,379.6	6.7%
Automotive Group	357.8	9.5	326.9	2.1	320.3	2.7	311.8	1.2
Food Group	331.0	5.3	314.3	4.1	301.8	6.3	283.9	5.0
General Merchandise	183.8	4.5	175.9	6.5	165.1	10.4	149.5	(2.2)
Eating and Drinking Places	157.4	6.6	147.6	9.1	135.3	1.4	133.4	7.1
Gasoline Service Stations	**108.0**	**4.7**	**103.2**	**6.1**	**97.3**	**(0.0)**	**101.2**	**1.8**
Apparel Group	83.0	4.9	79.1	5.7	74.8	0.7	74.3	14.1

Source: Survey of Current Business, Dept. of Commerce, Vol. 69, No. 1, January 1989.

Personal Consumption Expenditures

	(Billions of Dollars)						Seasonally Adjusted at Annual Rate—1988			
	1988	% Change '88-'87	1987	% Change '87-'86	1986	% Change '86-'85	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Total Expenditures	$3,226.0	7.1%	$3,012.1	7.6%	$2,799.8	7.7%	$3,128.1	$3,194.6	$3,261.2	$3,320.1
Durable Goods	449.9	6.6	421.9	4.8	402.4	12.0	437.8	449.8	452.9	459.3
Automobiles	208.0	6.2	195.8	0.5	194.9	15.2	202.2	208.7	210.2	210.9
Furniture	159.0	7.2	148.3	6.0	139.9	10.3	154.7	159.5	159.5	162.4
Other Durable	82.9	6.6	77.8	15.1	67.6	6.8	81.0	81.5	83.2	86.0
Nondurable Goods	1,047.2	4.9	997.9	6.2	939.4	3.8	1,016.2	1,036.6	1,060.8	1,075.2
Food	551.7	4.8	526.4	5.7	497.8	6.1	535.9	546.3	558.9	565.5
Clothing and Shoes	186.3	4.5	178.2	6.4	167.5	7.9	180.5	183.2	188.4	193.0
Gasoline and Oil	**78.8**	**2.3**	**77.0**	**2.3**	**75.3**	**(18.1)**	**76.3**	**78.8**	**80.5**	**79.8**
Other Nondurable Goods	230.4	6.5	216.3	8.8	198.8	5.3	223.5	228.2	233.0	236.9
Fuel Oil and Coal	17.3	6.8	16.2	1.3	16.0	1.9	17.0	17.2	17.4	17.7
Other Nondurable	213.1	6.5	200.1	9.5	182.8	5.7	206.6	211.0	215.6	219.2
Services	1,728.9	8.6	1,592.3	9.2	1,458.0	9.1	1,674.1	1,708.2	1,747.5	1,785.6

Source: Survey of Current Business, Dept. of Commerce, Vol. 69, No. 1, January 1989.

Retail Rankings: The Pruning Continues

On the whole, sales and earnings were healthy for the larger U.S. companies last year, but most of the majors and semi-majors are continuing to thin out their retail branded outlet populations.

According to data reported to NPN, the total count of branded stations among 20 leading companies was down by 8,745 in 1988. In fact, 13 of these top 20 lost a total of 10,402 outlets last year. Seven of the companies, most of them second tier majors added a total of 1,657 stations in 1988.

The pattern of attrition over the past few years keeps repeating itself. The top five companies in number of outlets in 1987 sold off or closed down a total of 5,964 stations last year. Of the top ten companies, only Unocal and Citgo added to their retail networks in 1988.

The big gainer in station numbers last year was Sun, which reported an increase of 1,245 outlets. More than 1,000 of those outlets came in the package of retail assets that came with Sun's Atlantic Petroleum acquisition.

Texaco's retail station population dropped by 2,234 outlets in 1988, a part of what Texaco refers to as a "historic restructuring" of the company following its emergence from Chapter 11.

		Outlets	*1987*
1	**Texaco**	15,389	(1)
2	**Exxon**	12,456	(2)
3	**Chevron**	11,969	(3)
4	**Mobil**	11,074	(4)
5	**Unocal**	10,926	(7)
6	**Shell**	10,847	(6)
7	**Amoco**	10,246	(5)
8	**Phillips**	9,757	(8)
9	**Citgo**	7,697	(10)
10	**BP America**	7,413	(9)
11	**Sun**	7,058	(12)
12	**Conoco**	4,843	(11)
13	**Gulf (Cumberland Farms)**	4,463	(13)
14	**American Petrofina**	3,458	(14)
15	**Marathon**	2,527	(15)
16	**Ashland**	2,110	(19)
17	**Diamond Shamrock**	1,973	(20)
18	**Kerr-McGee**	1,941	(21)
19	**Arco**	1,673	(22)
20	**Total**	1,439	(17)

	Number of States		Branded retail outlets	
	'88	'87	'88	'87
American Petrofina	24	24	3,458	4,117
Amoco	30	30	10,246	11,291
Arco	5	5	1,673	1,738
Ashland	19	18	2,110	2,103
BP America	28	29	7,413	7,716
Chevron	33	34	11,969	12,928
Citgo	40	39	7,697	7,458
Conoco	37	39	4,843	5,918
Diamond Shamrock	8	9	1,973	1,976
Exxon	37	37	12,456	13,451
Gulf (Cumberland Farms)	12	13	4,463	4,463
Kerr-McGee	21	21	1,941	1,937
Marathon	8	6	2,527	2,488
Mobil	36	37	11,074	11,795
Phillips	33	36	9,757	10,731
Shell	41	41	10,847	10,947
Sun	28	28	7,058	5,813
Texaco	45	44	15,389	17,623
Total	20	18	1,439	2,394
Unocal	43	41	10,926	10,817

Source: NPN questionnaires

Shell Tops In Credit Card Sales; Amoco Has Most Cards In Circulation

Shell Oil Co., the nation's largest gasoline retailer last year in market share, was also king of the hill in terms of proprietary oil company credit card sales and total credit volume in 1988.

According to the Nilson Report, a newsletter for credit card executives in the petroleum and other industries, Shell billed out more than $3.25-billion to the company's cardholders and had a total of $3.6-billion in credit charges last year. Shell also sends out the most statements to active accounts each month (5.1-million). Amoco, however, has the most company cards in circulation—16-million to Shell's 15.3-million—and was second to Shell in total credit volume at almost $3-billion.

Overall, the 40 companies included in the report did over $21.8-billion in proprietary card sales last year, an increase of 4% over the previous tabulation. Total transactions remained steady at 1.46-billion last year as did the number of oil company proprietary cards (118-million).

Although they represent little over one fifth of the total, charges for gasoline outlet purchases have increased dramatically (up 37%) for third-party cards, the report says. Bank card volume is up 41% while volume for the Discover card jumped from $18.8-million to $256-million. Discover, of course, is one of the newer players in the plastic marketplace.

The Nilson Report is published monthly. For information, write P.O. Box 49936, Los Angeles, CA 90049.

Profile: 40 Oil Company Credit Cards in the U.S.—1988

(Add 000 in all categories)

Company	Active Accounts(a)	Total Proprietary Accounts	Proprietary Sales Volume	Bank Card Sales Volume	T&E Sales Volume	Discover Cards	Other Cards(b)	Total Credit Sales(c)
Shell*	5,100	15,300	$3,250,000	$363,000	—	$1,500	$3,000	$3,617,500
Chevron	3,600	11,500	$2,600,000	$350,000	$10,000	$2,600	—	$2,962,600
Mobil*	3,600	14,000	$2,100,000	$300,000	$80,000	—	—	$2,480,000
Amoco*	3,450	16,000	$2,418,000	$357,000	$199,000	—	$5,000	$2,979,000
Exxon*	3,200	12,100	$2,450,000	$219,000	$5,000	$7,000	—	$2,681,000
Texaco*	3,150	13,300	$2,200,000	$400,000	$200,000	$50,000	$50,000	$2,900,000
Unocal	2,100	7,000	$1,850,000	$250,000	$68,000	$19,000	—	$2,187,000
Sohio	2,000	5,000	$1,200,000	$85,000	—	$12,000	—	$1,297,000
Phillips	1,100	4,500	$900,000	$200,000	—	$25,000	—	$1,125,000
Sunoco*	950	4,700	$750,000	$115,000	$30,000	$10,000	—	$905,000
Citgo	750	3,650	$295,000	$108,000	—	$3,500	—	$406,500
Gulf	478	3,325	$280,000	$63,500	—	$4,700	—	$348,200
Conoco	353	1,800	$305,000	$65,000	—	$76,000	—	$446,000
Diamond*	352	1,250	$290,000	$52,000	$3,200	$2,500	—	$347,700
Marathon	300	1,100	$223,000	$23,500	—	$3,500	—	$250,000
Total	180	945	$155,000	$110,000	—	$9,000	—	$274,000
Fina	161	722	$106,000	$30,500	$45	$5,100	$1,000	$142,645
Ashland	120	330	$100,000	$60,000	—	$11,000	—	$171,000
Kerr/McGee	114	565	$56,000	$15,000	—	$600	—	$71,600
Sinclair	84	357	$59,000	$18,000	—	$2,900	$1,000	$80,900
Crown	77	175	$42,000	$40,000	—	$1,000	$1,000	$84,000
Beacon	67	242	$45,000	$2,000	$35	$100	—	$47,135
Coastal	60	200	$35,000	$15,100	—	$1,600	—	$51,700
Tenneco	40	113	$27,000	$22,597	—	$5,016	$644	$55,257
Cenex	30	195	$21,000	$3,000	—	—	$80	$24,080
Getty	12	35	$20,000	$59,000	—	$495	—	$79,495
Tesoro	9	42	$7,000	$1,400	—	$110	—	$8,510
Emro	9	44	$23,000	$4,000	—	—	—	$27,000
Kent	6	23	$3,000	$1,000	—	—	—	$4,000
Aloha	5	23	$3,000	$1,000	—	—	—	$4,000
Sing	5	14	$4,000	$4,043	—	$60	—	$8,103
Canal	3	11	$2,000	—	—	—	—	$2,000
Gibble	3	10	$2,000	$680	—	$100	—	$2,780
MFA	2	5	$2,000	$2,800	—	$2,000	—	$6,800
Kwik Fill	2	5	$30,000	$4,000	—	—	—	$34,000
Certified	2	8	$2,000	—	—	—	—	$2,000
Illico	2	4	$1,000	$1,000	$30	$50	—	$2,080
Iowa	1	2	$2,000	$3,600	—	$25	$30	$5,655
Coast	1	1	$2,000	$1,700	—	$15	$35	$3,750
E-Z Serve	1	5	$1,000	$5,000	—	—	$3,000	$9,000
Totals (top 10)	**28,250**	**103,400**	**19,718,000**	**2,639,000**	**592,000**	**127,100**	**58,000**	**23,134,100**
Totals (top 20)	**31,142**	**117,414**	**21,317,000**	**3,174,500**	**595,245**	**245,900**	**60,000**	**25,672,645**
Grand total (40)	**31,478**	**118,599**	**21,861,000**	**3,356,420**	**595,310**	**256,471**	**64,789**	**26,133,990**

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*Includes annual-fee cards. (a) Active accounts equal the number of statements mailed monthly. (b) Other cards include third-party fleet cards and government cards. (c) Total credit sales does not include $2.2-billion generated on general purpose cards at convenience stores that do not offer proprietary credit.

Source: The Nilson Report, January 1989.

Dollars Per Day Survey—1987[a]

Company	No. of Stores	No. of Gasoline Units	% Stores with Gasoline	Gasoline Units Added during Year	Gal. Sold in 1987 (Add 000)	Avg. Gal. Sold per Day per Unit	Gasoline Margin per Gal.	% of Sales Contributed by Gasoline	% of Margin Contributed by Gasoline
Casey's	653	653	100%	67	226,964	1,001	10.6¢	38.5%	25.2%
Circle K	4,077	3,011	74	578	1,073,500	1,077	10.2	37.0	14.0
Silcorp	1,049	234	22	34	98,119	1,242	N/A	N/A	N/A
Dairy Mart	1,188	438	37	23	178,000	1,146	8.8	N/A	10.8
Sunshine Jr	316	306	97	(11)	90,900	760	9.7	49.0	24.0
National Convenience	1,119	874	78	151	420,000	1,437	9.8	39.9	16.4
Munford	705	407	58	(41)	49,140	500	N/A	N/A	N/A
Southland	7,818	3,545	45	(49)	1,780,746	1,367	8.7	21.0	7.0
Totals	**16,925**	**9,468**	**56**	**752**	**3,917,368**	**1,198**	**N/A**	**27.4**	**N/A**

[a] As ranked in 18th Annual Dollars Per Day Survey [illegible] excludes companies like Cumberland Farms, which are privately owned but are nevertheless major gasoline retailers.

Box Score on C-Store Growth

Year	No. of C-stores	No. of Gasoline Units	% of Stores with Pumps	Gal. Pumped per Unit per Year	Total Gal. Pumped by C-stores (Add 000)	% of Total Gasoline Market Supplied by C-stores (Billions)	% of Increase over Previous Year
1987	70,000	39,151	56%	437,270	17,119,557	15.7%	0.0%
1986	64,000	34,656	54	485,450	16,823,755	15.8	9.3
1985	60,000	32,064	53	465,740	14,933,487	14.4	12.0
1984	58,000	31,528	54	447,855	14,119,972	13.9	10.9
1983	53,000	28,164	53	438,365	12,346,111	12.4	24.1
1982	50,000	24,555	49	401,665	9,865,663	10.0	43.2
1981	39,000	18,330	47	379,600	6,958,068	7.0	14.2
1980	39,000	17,160	44	359,890	6,175,712	6.1	—

Source: 18th Annual Dollars Per Day Survey of the Convenience Store Industry by John Roscoe and Associates, published in [illegible] 1989.

C-Store Gasoline Growth Slows Down

Since the beginning of the 1980's, convenience store companies have moved adroitly and aggressively to carve out larger shares of the gasoline marketplace. Indeed, three major C-store firms—Cumberland Farms, Southland Corp. and Circle K, each with billion-plus annual gallonages—have boosted themselves into the upper ranks of U.S. gasoline marketing companies.

However, there appears to be a throttling down of the fast paced growth of C-store companies in the gasoline business, according to the 18th Annual "Dollars Per Day Survey" of the Convenience Store Industry. Published by John F. Roscoe, a West Coast chain marketer, the latest Survey reports that while individual companies are getting good results, the overall penetration of C-stores in the gasoline market has slowed to a standstill, at least temporarily.

Total estimated gallons of gasoline sold for convenience stores in 1987 was 17.1-billion, the Dollars Per Day Survey says, an increase of about 300-million gal. over 1986. However, the 15.7% C-store share of total 1987 highway gasoline sales (109.1-billion gal.) was virtually unchanged from the previous year market share percentage (see table above). This followed a string of sometimes spectacular increases dating from 1980, when the total C-store share was only 6% of the gasoline market.

This somewhat flat performance is reflected in a decline in average gallons pumped per C-store unit from 1986 to 1987. According to the Survey, the typical store pumped 437,270-gal. in 1987, down from the 485,450-gal. per store average in 1986. In fact, average store gallonage in 1987 was the lowest in five years.

Survey publisher John Roscoe sees a widening gap between oil company and convenience store gasoline units. "It appears that traditional convenience stores' gasoline units are not keeping pace with the gasoline industry," he says. "The oil companies continue to improve and upgrade their units. Most convenience stores still operate outdated two pump units. Gallonage in these units will continue to suffer as the majors build their new million dollar units."

Still, major C-store firms continue to invest in gasoline facilities and the percentage of stores with gasoline units increased to an all-time high of 56% in 1987. The eight leading C-store firms tracked in the Dollars Per Day Survey (see table) reported a net increase of 752 gasoline units in 1987, led by Circle K with 578 units added during the year.

Slowdown in the C-Store Growth Rate

In contrast to the decline in the traditional service station population, the number of convenience stores continues to rise annually. However, in 1988 the pace of growth took a dip from the 5%-plus increases in C-stores over the past several years.

According to preliminary data from the soon-to-be-released 1989 State of the Convenience Store Industry Report from the National Assn. of Convenience Stores, the number of C-stores climbed 2.5% from 67,500 in 1987 to 69,200 in 1988. In 1987, store growth was 5.4%.

Total industry sales grew by 2.7% to $61.2-billion last year, NACS says, compared to a 10.6% increase the year before. C-store gasoline sales amounted to $22-billion in 1988 (up 7.3%) while merchandise sales edged up slightly from $39.1-billion to $39.2-billion.

Total industry profits of $1.163-billion in 1988 were down 11.4% from $1.312-billion in 1987. Average investment for a new urban store was $773,300, compared to $682,800 the year before.

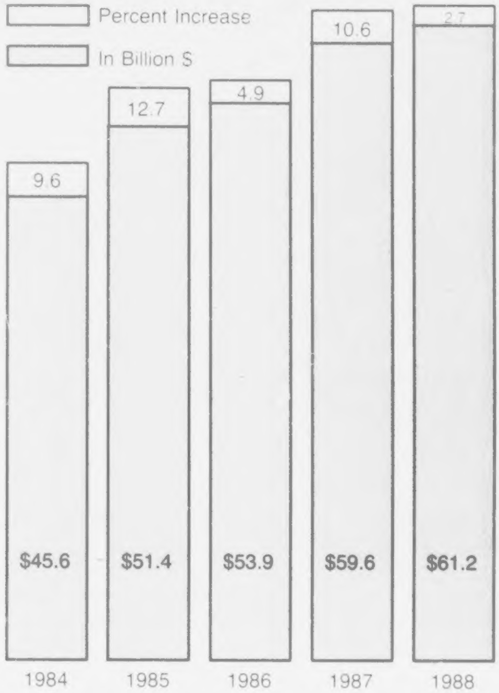
Meanwhile, data from the 1988 NACS survey shows that C-store gasoline margins slipped somewhat in 1987 (See table below), but non-gasoline margins increased to 35.9%, the best in five years reported.

C-store Gross Margin As a Percent of Sales

Survey Year	Gasoline Margin %	Non-Gasoline Margin %	Average Margin %
1987	10.6	35.9	24.4
1986	11.2	35.5	25.1
1985	7.3	32.2	22.8
1984	6.0	32.0	21.6
1983	5.0	31.5	20.7

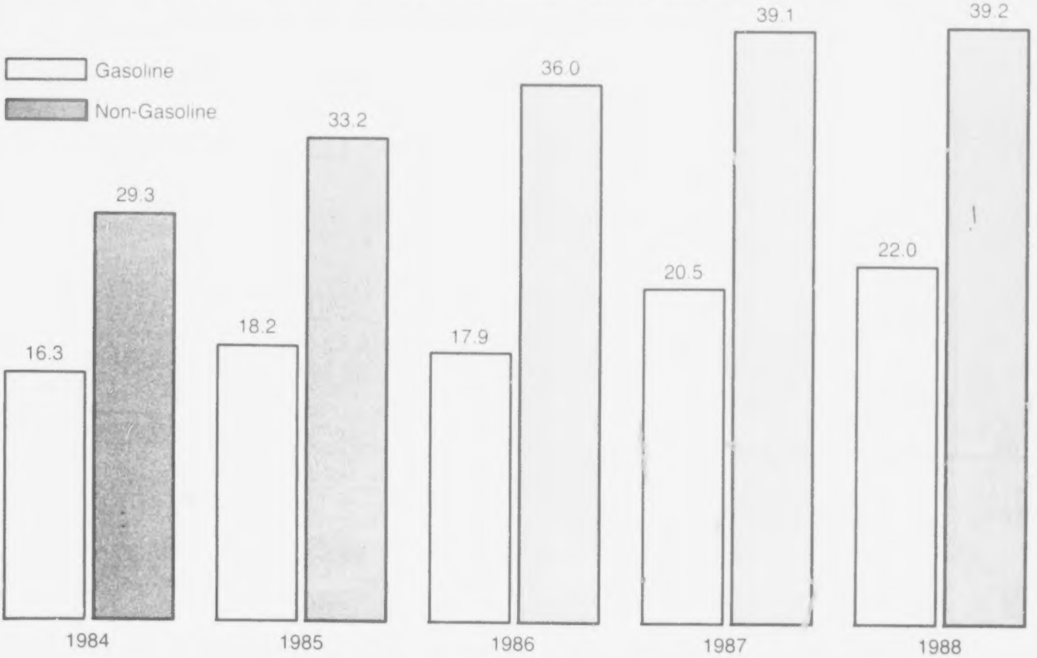
Source: NACS' 1988 State of the Convenience Store Industry' Report

Total Convenience Store Industry Sales



Source: NACS' 1989 State of the Industry Report

Total Non-Gasoline vs. Gasoline Sales (in Billion $)



C-Stores Average by Product Category

	Percent of Non-Gas Purchases				Gross Margin Percent		Inventory Turnover Rate
	1987	1986	1985	1984	1987	1986	1987
COOLER							
Beer (Hot & Cold)	13.6%	13.7%	13.9%	13.7%	27%	26%	21.3%
Soft Drinks (Hot & Cold)	9.7	10.3	10.2	11.3	35	34	19.5
Juices	1.2	1.4	1.0	0.8	40	38	16.6
Milk & Milk Products	5.8	5.9	6.6	6.9	23	22	60.8
Packaged Deli	0.9	0.8	1.2	1.3	34	35	18.1
Produce	0.7	0.6	0.4	0.4	26	28	46.1
Eggs	0.3	0.3	0.4	0.4	26	23	26.6
FROZEN							
Frozen Food	0.6	0.7	0.7	0.7	36	37	7.1
Ice Cream	1.3	1.4	1.6	1.6	39	37	14.8
Ice	0.8	1.0	0.9	0.9	56	54	31.5
ROOM TEMP.							
Bread & Cakes	3.3	3.3	3.5	4.0	29	29	59.3
Cookies	0.7	0.9	0.8	0.8	36	36	11.8
Salty Snacks (Chips, Nuts, etc.)	4.2	3.9	3.7	3.8	36	37	32.1
Candy & Gum	5.3	4.9	4.9	4.9	42	42	26.1
Groceries	5.6	5.6	5.9	9.0	35	36	8.0
Health & Beauty Aids	3.0	3.0	3.4	3.3	38	39	6.9
Tobacco	20.7	19.8	17.8	18.1	29	29	23.7
Publications	3.7	3.7	5.4	4.0	20	21	19.7
Wine/Liquor	1.3	1.4	1.3	1.3	30	30	16.4
Automotive/Motor Oil	1.4	0.9	0.7	0.8	40	36	14.5
General Merchandise	2.8	2.1	2.6	2.3	41	40	10.9
FAST FOOD							
Sandwiches—Fresh	1.8	1.3	1.7	1.7	41	39	54.2
Sandwiches—Frozen	1.2	1.3	1.4	1.2	37	38	31.1
Deli Services (excluding sandwiches)	3.0	3.3	3.0	1.3	45	47	34.4
Food Cooked On-site	0.8	0.4	0.3	0.2	42	47	64.6
Fountain Drinks	2.4	3.6	2.6	2.4	60	61	20.5
Frozen Beverages	0.9	0.9	0.9	0.5	43	41	8.9
Hot Beverages	2.1	2.7	1.6	1.2	66	66	31.8
Other Fast Food	0.9	0.9	1.6	1.2	39	42	41.5
TOTAL NON-GAS MERCHANDISE	100%	100%	100%	100%			

Source: NACS "1988 State of the Convenience Store Industry" survey.

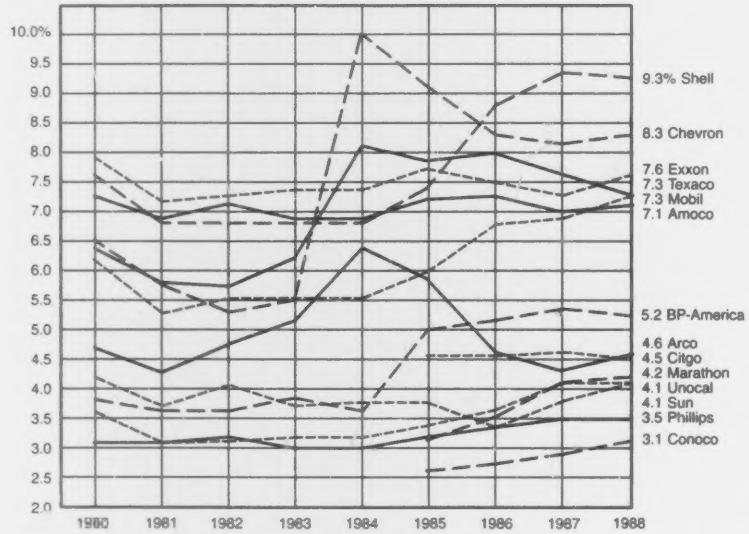
Profit/Loss Comparison: 1986-1987

	11-50 Stores		51-100		101-500		Over 500		Average	
	1987	1986	1987	1986	1987	1986	1987	1986	1987	1986
Non-Gas Sales	43%	39%	54%	56%	58%	50%	70%	64%	66%	60%
Gas Sales	57	61	46	44	42	50	30	36	34	40
Total Sales	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cost of Goods Sold	80.5	79.3	77.5	76.6	76.6	76.7	74.1	72.3	75.6	74.9
Gross Profit	19.5	20.7	22.5	22.4	23.4	23.3	25.9	27.7	24.4	25.1
Direct Store Operating Expense	14.3	14.4	16.8	17.6	17.9	16.8	19.0	19.9	18.2	18.3
Store Operating Profit	5.2	6.3	5.7	4.8	5.5	6.6	6.9	7.8	6.2	6.8
Corporate G & A	(3.2)	(3.4)	(3.7)	(3.5)	(4.2)	(4.8)	(4.4)	(4.5)	(4.2)	(4.3)
Other Income	1.3	.8	1.3	2.0	1.3	1.6	1.4	1.6	1.5	1.7
Other Expense	(.4)	(.5)	(.8)	(.9)	(.9)	(1.4)	(1.7)	(1.9)	(1.3)	(1.5)
Pretax Profit	2.9%	3.3%	2.5%	2.4%	1.7%	2.0%	2.2%	3.0%	2.2%	2.6%

Source: NACS "1988 State of the Convenience Store Industry" survey.

TRENDS IN GASOLINE MARKET SHARES

14 Top Marketers 1980-1988



N.B.: This graph was revised in 1988 to include all marketers with national shares of 2.0% or more. In some instances, pre-1985 data was not available.

Shell Does It Again: Keeps Gasoline Derby Title For Third Year In A Row

Even though its gross volume dipped slightly—a skimpy three-tenths of one percent—Shell Oil Co. had more than enough headway over its rivals in the annual "gasoline derby" to retain its title for the third time as the top gasoline marketer.

Shell wrapped up 1988 with gross gasoline sales of 10.6-billion gal., slightly more than 1-billion gal. ahead of the second-place contender but down 31-million gal. from its 1987 peak. The slippage was roughly equivalent to one day's volume of gasoline sales.

The only thing that makes this aberration noticeable or notable at all is the fact that this was the first time since 1984 that Shell's annual gross volumes had failed to top the previous year's. Its 10.6-billion gal. in 1987 is still the industry's all-time high.

Second place in the gasoline derby went to Chevron, followed by Exxon, Texaco, Mobil, Amoco, BP-America and Arco, in that order. The big changes in the top 10 were Texaco's replacement by Exxon U.S.A. as the third largest gasoline vendor, and Mobil's leap-frogging of Amoco to take over fifth place. Texaco, which fought many major battles in 1988 just to stay alive, skidded to fourth while Amoco dropped to sixth.

Marathon Petroleum, which had been neck-to-neck with Sun Refining & Marketing in 1987, squeezed past the Philadelphia-based company to take a firm hold on 10th place, immediately behind a resurgent Citgo Petroleum. Unocal also skipped past Sun, occupying 11th place while Sun sank to an ignoble 12th position.

Shell's 10.6-billion gal.—the second year in a row that it sold more than 10-billion gal.—was enough to give it 9.284% of the U.S. marketplace. Chevron's share was 8.267% with Exxon at 7.618%, Texaco at 7.309%, Mobil at 7.282% and Amoco at 7.080%.

Some of the companies had relatively strong growth patterns in gasoline sales in 1988. Unocal, for example, was up 8.5%. Conoco had a 7.5% increase but that wasn't enough to change its position in the lineup. Citgo enjoyed a 5.3% increase. Mobil rang up a 5.2% increase. Of the leaders, Chevron rose 2.3% and Exxon, 5.0%. Good in both cases but not enough to win upscale promotions. Leader Shell, knew fourth place Texaco and BP-America were the only big companies to lose ground in 1988. Shell was off 0.3%, Texaco 3.4% and BP-America, 3.0%.

A point to remember is that one-third of the top 14 gasoline marketers are owned in whole or in part by foreign interests. It also means that three out of every 10-gal. of gasoline sales are in their hands. Shell and BP-America are wholly-owned subsidiaries of BP-London and the Royal Dutch Shell Group; Citgo and Texaco Marketing are owned 50-50 by Venezuelan and Saudi Arabian interests; and Conoco (DuPont) is owned partially by French interests.

The gasoline volumes used in this National Petroleum News boxscore are from company annual reports and K-filings with the Securities and Exchange Commission. Special attention should be paid to the fact that these are gross sales, not retail pump sales. Gross sales include wholesale and interrefinery exchanges.

At right is the 1988 lineup as compiled by NPN. The table below right gives the revised figures for 1987, for comparison purposes.

Chevron tops in total products

Even though it was beaten by Shell Oil in gross gasoline volumes, Chevron U.S.A. continued to be the leader in total product sales—gasoline, distillates, resid and all the other items that pour out of refineries in normal operating procedures.

Chevron averaged 1.5-million b/d to lead the parade. Shell was second with 1.3-million b/d, with Texaco, Exxon and Amoco following in that order.

Some of the percentage increases were impressive. Citgo reported a 10% surge while Unocal was up 8.6% and Mobil, 7.2%. Phillips and Exxon were almost even-stephen, with Phillips up 5.4% and Exxon 5.3%. BP-America was off 3.8%, Shell 2.8% and Sun, almost 1%.

Here's the product sales boxscore, as announced by the various companies in their annual reports:

1988 Refined Product Sales

(Add 000 b/d)

	1988	1987	% [illegible]ng.
Chevron	1,451	1,430	1.5%
Shell	1,314	1,352	(2.8)
Texaco	1,175	1,159	1.4
Exxon	1,113	1,057	5.3
Amoco	953	918	3.8
Mobil	927	865	7.2
BP-America	812	844	(3.8)
Sun	699	705	(0.9)
Arco	668	680	(1.2)
Phillips	585	555	5.4
Marathon	559	527	6.1
Unocal	520	479	8.6
Conoco	502	479	4.8
Citgo	493	448	10.0

Gross Gasoline Gallons and Relative Market Shares—1988[a]

(Projection: 1988 sales equal 114.2-billion gal.) (b)
(Add 000 gal.)

	Rank	% Share of Mkt.	Gross Gal. (c)	% Chng. vs 1987
Shell	1	9.284%	10,593,030	(0.3%)
Chevron	2	8.267	9,427,950	2.3
Exxon	3	7.618	8,692,110	5.0
Texaco	4	7.309	8,339,520	(3.4)
Mobil	5	7.282	8,308,860	5.2
Amoco	6	7.080	8,078,910	1.2
BP-America	7	5.222	5,963,370	(3.0)
Arco	8	4.595	5,242,860	1.2
Citgo	9	4.541	5,181,540	5.3
Marathon	10	4.178	4,767,630	3.3
Unocal	11	4.084	4,660,320	9.7
Sun	12	4.071	4,64[illegible]990	0.7
Phillips	13	3.452	3,938,810	0.4
Conoco	14	3.090	3,525,900	7.5
Total		**80.0**	**91,365,800**	**2.0**

(a) Preliminary data; (b) Retail gasoline gallonage for 1988 projected by NPN and based on FHA and API reports; (c) gross gasoline volumes as reported in annual reports, 10-K's and internal summaries; most numbers were rounded to retain comparability. NB: Cumberland Farms-Gulf, Getty, Circle K and Southland, while all big retailers, were excluded from this boxscore since all lack refineries and their volumes come from many sources, including some of the branded companies above.

1987 Gross Gallons and Relative Market Shares (revised)

(FHA retail sales in 1987 totaled 113.9-billion gal.)
(Add 000 gal.)

	Rank	Share of mkt.	Gross gal.	% Chng. vs 1986
Shell	1	9.325%	10,623,690	11.8%
Chevron	2	8.087	9,213,330	0.6
Texaco	3	7.575	8,630,790	(1.2)
Exxon	4	7.266	8,278,200	(1.6)
Amoco	5	7.010	7,986,930	(0.4)
Mobil	6	6.930	7,894,950	7.7
BP-America	7	5.396	6,147,330	12.9
Arco	8	4.548	5,181,540	3.0
Citgo	9	4.319	4,920,930	(2.7)
Sun	10/11	4.050	4,614,330	4.5
Marathon	10/11	4.050	4,614,330	4.9
Unocal	12	3.727	4,246,410	6.5
Phillips	13	3.445	3,924,480	5.3
Conoco	14	2.879	3,280,620	9.7
Total		**79.0**	**89,557,860**	**(1.2)**

NB: See footnotes in 1988 boxscore inasmuch as they also apply here.

Share of Market—Top 20 Companies in 1987

Production

	Crude oil and NGL(a) (Add 000 b/d)	% of Mkt.		Natural gas Millions/CF	% of Mkt.
BP America	851.3	8.51%	Chevron	708,465	4.34%
Exxon	756.0	7.55	Mobil	656,635	4.02
Arco	655.0	6.64	Texaco	644,590	3.95
Shell	558.0	5.58	Exxon	619,770	3.79
Texaco	540.0	5.40	Amoco	617,000	3.78
Chevron	506.9	5.07	Shell	558,085	3.42
Amoco	394.0	3.94	Arco	464,280	2.84
Mobil	338.0	3.38	Tenneco	368,377	2.26
Phillips	287.0	2.87	Phillips	281,780	1.73
USX/Marathon	171.1	1.71	Occidental	281,415	1.72
Unocal	167.0	1.67	USX/Marathon	274,480	1.68
Sun	159.3	1.59	Unocal	271,925	1.66
Occidental	129.0	1.19	Sun	230,315	1.41
DuPont/Conoco	107.0	1.07	DuPont/Conoco	219,365	1.34
Tenneco	100.9	1.01	Burlington Northern	151,000	0.92
Burlington Northern	79.8	0.80	Union Pacific/Champlin	124,830	0.76
Amerada Hess	68.5	0.68	Enron	120,450	0.74
City of Long Beach	67.8	0.68	Pennzoil	115,052	0.72
Union Pacific/Champlin	61.1	0.61	Consolidated Nat'l. Gas	109,562	0.67
Enron	57.1	0.57	Mesa	102,261	0.63

Proved Reserves

	Crude oil and NGL(a) (Million/bbl.)	% of Mkt.		Natural Gas (Billions/CF)	% of Mkt.
BP America	2,953.0	8.34%	Amoco	10,690	6.57%
Arco	2,818.0	7.96	Exxon	9,761	6.00
Shell	2,782.0	7.86	Mobil	7,741	4.76
Exxon	2,634.0	7.44	Chevron	7,078	4.35
Chevron	1,809.0	5.11	Shell	6,541	4.02
Amoco	1,670.0	4.72	Arco	5,854	3.60
Texaco	1,603.0	4.53	Texaco	4,783	2.94
Mobil	1,024.0	2.89	Unocal	4,399	2.71
Unocal	656.0	1.85	Phillips	3,369	2.07
Sun	621.0	1.75	USX/Marathon	3,277	2.02
USX/Marathon	621.0	1.75	Tenneco	2,943	1.81
Phillips	457.0	1.29	Burlington Northern	2,807	1.73
Occidental	457.0	1.29	Occidental	2,734	1.68
DuPont/Conoco	351.0	0.99	Sun	2,232	1.37
Tenneco	270.0	0.76	DuPont/Conoco	1,959	1.20
Amerada Hess	201.0	0.57	BP America	1,932	1.19
Santa Fe	129.3	0.39	Mesa	1,904	1.17
Pennzoil	135.0	0.38	Anadarko	1,717	1.06
Union Pacific/Champlin	130.1	0.37	Enron	1,360	0.84
Mesa	88.4	0.25	Union Pacific/Champlin	1,327	0.82

Refining Capacity

	Operable Capacity (000 b/d)	% of Total capacity	Runs (000 b/d)(b)	% of U.S. total	% utilized
Chevron	1,718.6	11.35%	1,387.7	10.71%	77.7%
Exxon	1,169.0	7.72	1,026.0	7.92	87.8
Shell	1,065.7	7.04	969.0	7.48	90.9
Amoco	939.0	6.20	842.0	6.50	89.7
Texaco	881.5	5.82	836.0	6.45	94.8
Mobil	755.0	4.99	645.0	4.98	85.4
Arco	668.0	4.41	669.4	5.17	100.2
BP America	667.6	4.41	622.5	4.81	99.2
USX/Marathon	513.0	3.39	452.5	3.49	88.2
Unocal	497.0	3.28	428.0	3.30	86.1
Sun	460.0	3.04	427.2	3.30	92.9
DuPont/Conoco	394.3	2.60	348.0	2.69	88.3
Ashland	346.5	2.29	319.1	2.46	92.0
Phillips	305.0	2.01	302.0	2.33	99.0
Coastal	290.4	1.92	173.8	1.34	59.8
Koch	280.0	1.85	NA	NA	—
Petroleos de Venezuela(c)	226.1	1.49	194.3	1.50	85.9
Total Petroleum	191.1	1.26	172.7	1.33	90.4
Kerr-McGee	164.8	1.09	140.9	1.09	85.5
Solomon	155.7	1.03	NA	NA	—

(a) Natural Gas Liquids and Condensate

(b) Runs are not listed in the usual ranking order; they are keyed to operable capacities in Column 1, hence some are not listed in their correct numerical positions.

(c) Petroleos de Venezuela, the Venezuelan national oil company, owns 50% of Citgo Petroleum and 50% of Champlin Refining Company. In 1987, Citgo's operable refining capacity averaged 297,000 b/d and Champlin's averaged 155,200 b/d.

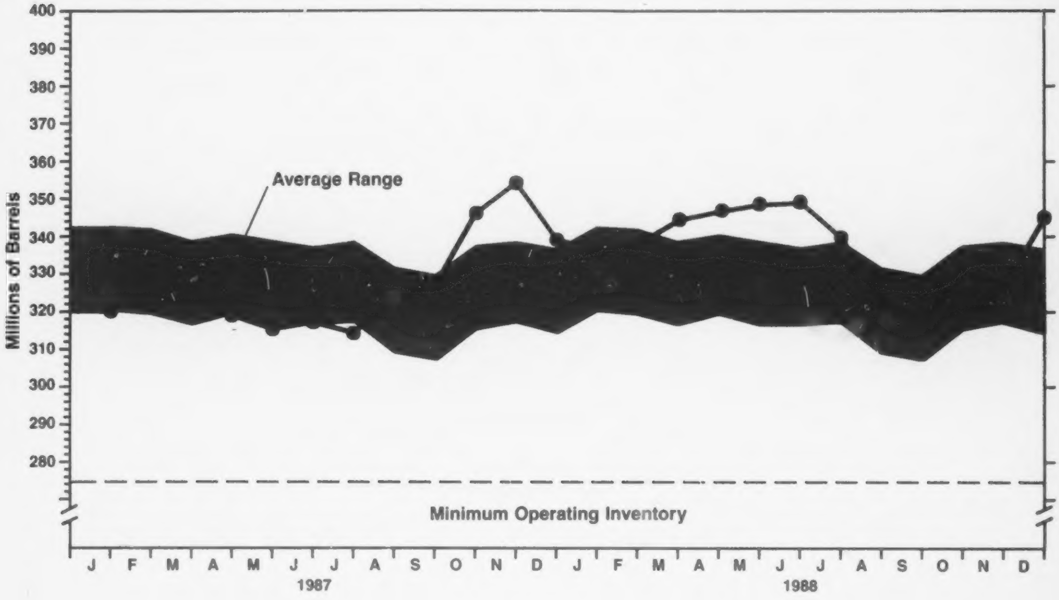
Share of Market —Concentration Ratios

(% of U.S. total)

	1987	1986	1985	1980	1975	1970	1965
Gasoline Sales							
4 Firms	28.9%	29.5	29.8	28.5	29.5	30.7	—
8 Firms	48.7	49.6	50.3	49.5	50.3	54.6	—
15 Firms	65.0	66.4	67.7	66.3	68.6	74.9	—
20 Firms	70.2	70.5	71.8	72.1	74.7	80.[illegible]	—
30 Firms	76.4	76.6	71.2	77.9	—	—	—
Proved Reserves of Crude Oil and Liquids							
4 Firms	31.6%	29.7	29.3	31.1	36.3	—	—
8 Firms	48.9	47.1	47.6	46.3	55.6	—	—
15 Firms	58.5	57.2	57.9	59.5	70.4	—	—
20 Firms	60.5	59.3	60.0	62.7	74.5	—	—
30 Firms	62.0	61.0	61.7	65.2	—	—	—
Production of Crude Oil and Liquids							
4 Firms	28.3%	26.6	26.1	25.3	26.0	26.3	23.9
8 Firms	46.1	44.6	43.5	40.8	41.2	41.7	38.5
15 Firms	57.3	56.4	55.2	56.1	57.0	56.9	50.3
20 Firms	60.6	59.7	58.4	60.6	61.2	61.1	55.0
30 Firms	63.9	63.2	61.9	64.8	—	—	—
Refining Capacity							
4 Firms	32.2%	33.2	34.4	29.0	29.9	32.5	30.4
8 Firms	52.0	53.0	54.4	49.0	53.5	57.5	54.3
15 Firms	70.5	71.6	73.0	67.0	74.1	78.1	75.0
20 Firms	77.2	79.0	80.3	74.5	81.3	84.3	83.0
30 Firms	86.3	87.9	88.8	82.3	—	—	—
Refinery Runs							
4 Firms	32.6%	33.2	33.9	31.2	32.9	34.2	31.0
8 Firms	54.0	55.3	57.3	53.9	57.7	61.0	55.3
15 Firms	73.1	74.7	76.5	73.6	79.4	84.6	73.3
20 Firms	79.2	80.9	82.5	81.5	86.8	91.1	81.4

Source: American Petroleum Institute, Market Shares and Individual Company Data for U.S. Energy Markets 1950-1986, published October 1987.

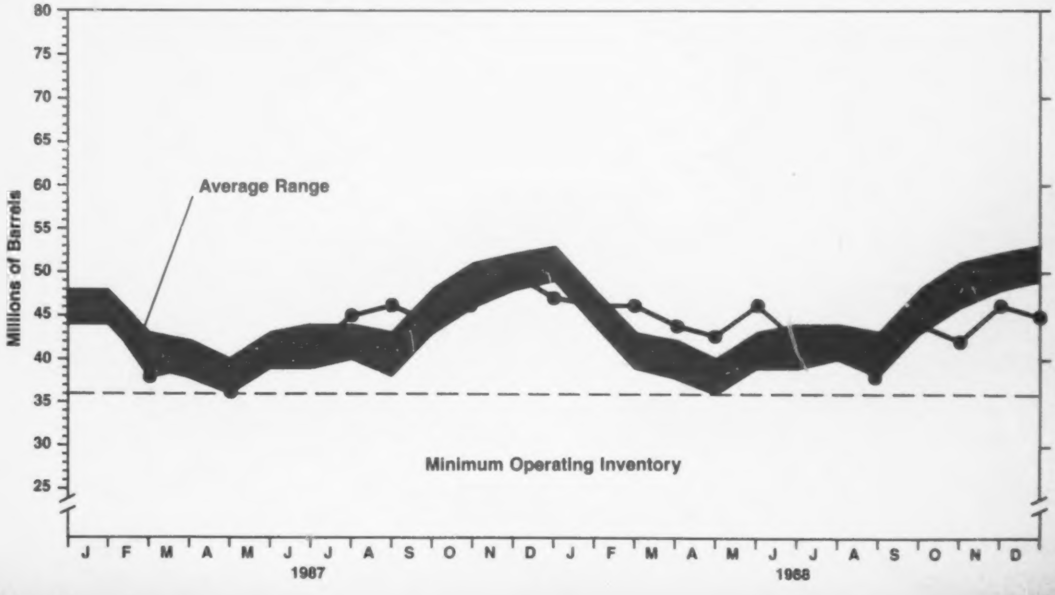
Stocks of Crude Oil, U.S. Total
(Millions of bbl.)



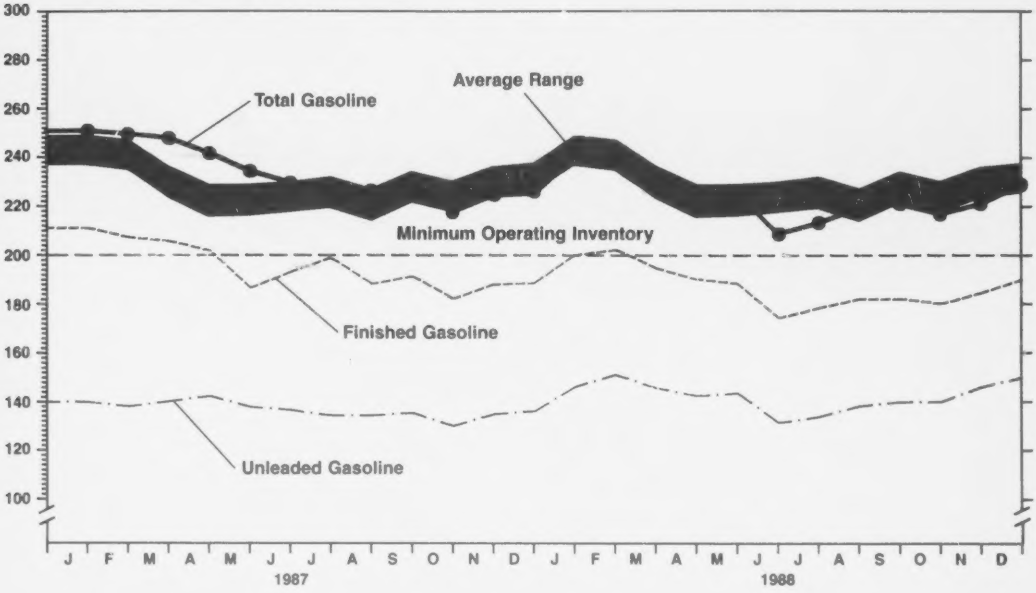
Crude Stocks at Primary Levels include those held at refineries, in pipelines, and in lease tanks, but do not include those held in the Strategic Petroleum Reserve operated by the U.S. Government. The average level and width of average range are based on three years of monthly data. The seasonal pattern is based on seven years of monthly data. National Petroleum Council defines the Minimum Operating Inventory as the minimum level required for routine operation. By its definition, runouts and shortages could occur if inventory levels fall below that level for any extended period of time.

Source: Department of Energy, Weekly Statistical Reports.

Stocks of Residual Fuel Oil, U.S. Total
(Millions of bbl.)

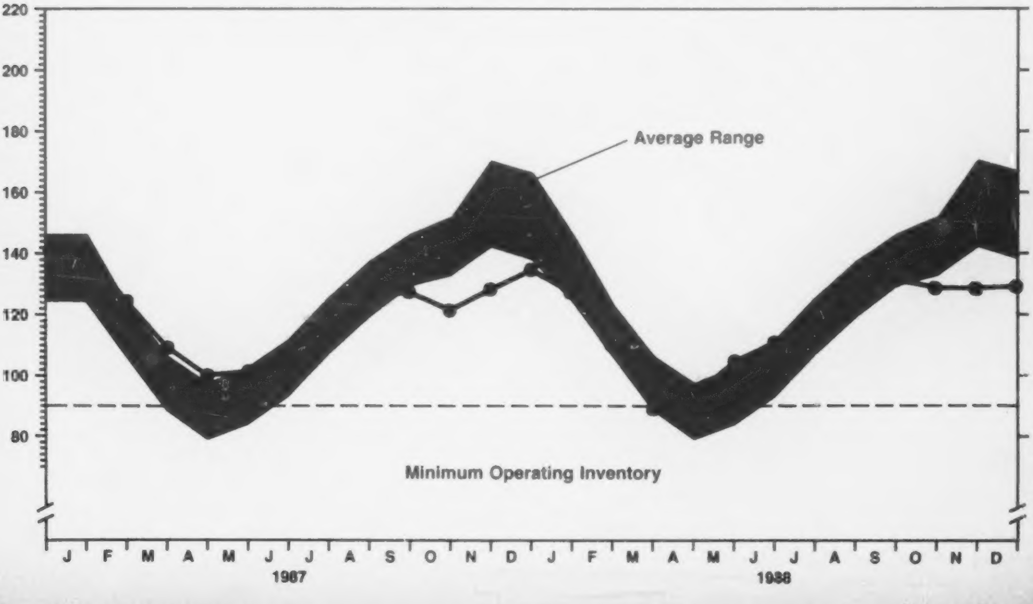


Stocks of Motor Gasoline, U.S. Total (Millions of bbl.)



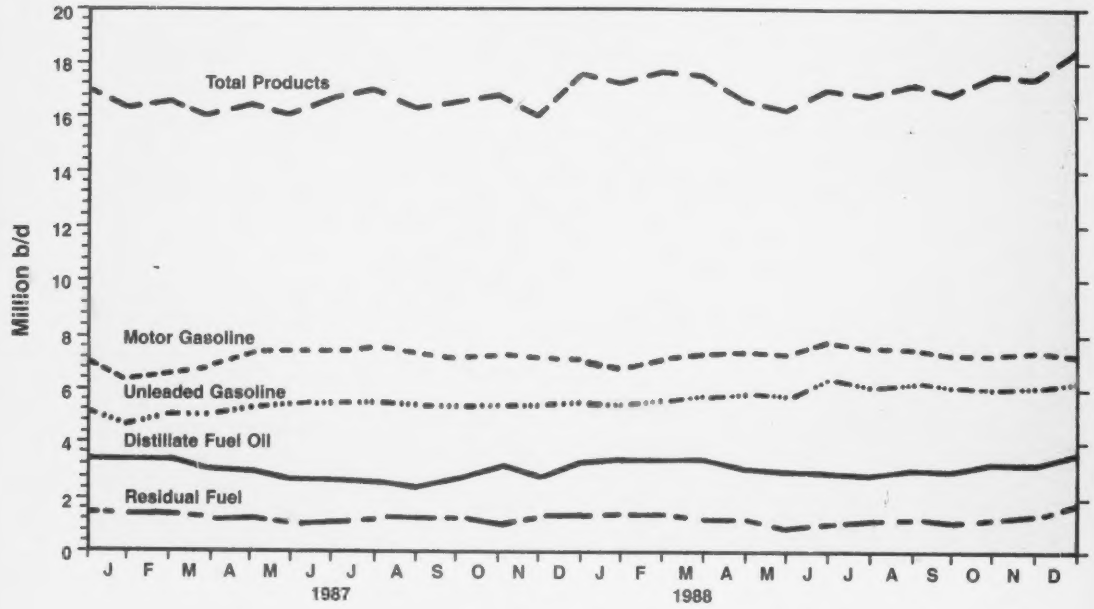
Product stocks at the Primary Level include those held at refineries, in pipelines, and at major bulk terminals. They do not include stocks held in secondary distribution facilities such as jobber tanks, consumer tanks, and/or barges designed for consumer markets. The average level and width of average range are based on three years of monthly data. The seasonal pattern is based on seven years of monthly data. National Petroleum Council defines the Minimum Operating Inventory as the minimum level required for routine operation. By its definition, runouts and shortages could occur if inventory levels fall below that level for any extended period of time.
Source: Energy Information Administration, Weekly Statistical Reports.

Stocks of Distillate Fuel Oil, U.S. Total (Millions of bbl.)



Domestic Product Supply Trends

(Million b/d)



Source: Energy Information Administration, Weekly Status Reports

Petroleum Products Supplied

(Millions of b/d)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1988												
Finished Motor Gasoline	6.7	7.0	7.3	7.4	7.3	7.8	7.5	7.5	7.3	7.3	7.4	7.3
Leaded	1.3	1.4	1.4	1.4	1.5	1.5	1.3	1.3	1.3	1.3	1.2	1.0
Unleaded	5.4	5.6	5.8	5.9	5.8	6.4	6.1	6.2	6.1	6.0	6.1	6.3
Jet Fuel	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.7
Distillate Fuel Oil	3.5	3.5	3.5	2.9	2.8	2.8	2.6	2.9	2.8	3.2	3.2	3.6
Residual Fuel Oil	1.6	1.6	1.4	1.3	0.9	1.1	1.2	1.3	1.1	1.3	1.5	1.8
Other	3.9	4.0	3.9	3.5	3.8	3.9	3.9	4.3	4.1	4.2	4.0	3.9
Total	17.2	17.6	17.5	16.4	16.1	17.1	16.6	17.4	16.8	17.5	17.4	18.3
1987												
Finished Motor Gasoline	6.5	6.8	7.0	7.3	7.5	7.5	7.6	7.3	7.2	7.3	7.2	7.3
Leaded	1.7	1.7	1.8	1.9	1.9	1.9	1.8	1.7	1.7	1.7	1.6	1.5
Unleaded	4.8	5.1	5.2	5.4	5.6	5.7	5.7	5.7	5.5	5.6	5.6	5.7
Jet Fuel	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.4	1.5
Distillate Fuel Oil	3.3	3.3	3.1	3.0	2.7	2.8	2.7	2.6	2.8	3.2	2.9	3.3
Residual Fuel Oil	1.5	1.5	1.2	1.2	1.0	1.2	1.3	1.2	1.3	1.1	1.2	1.4
Other	4.0	3.8	3.5	3.7	3.5	3.9	4.1	3.9	4.0	3.9	3.7	4.0
Total	16.7	16.9	16.2	16.5	16.0	16.8	17.1	16.3	16.7	16.9	16.3	17.4
1986												
Finished Motor Gasoline	6.5	6.5	7.0	7.1	7.1	7.2	7.4	7.4	6.9	7.3	6.9	7.1
Leaded	2.1	2.1	2.3	2.3	2.4	2.3	2.3	2.3	2.1	2.2	2.0	2.0
Unleaded	4.4	4.4	4.7	4.8	4.7	4.9	5.2	5.1	4.8	5.1	4.9	5.2
Jet Fuel	1.3	1.3	1.2	1.3	1.2	1.3	1.3	1.4	1.3	1.3	1.4	1.4
Distillate Fuel Oil	3.3	3.4	3.2	2.9	2.8	2.5	2.6	2.6	2.5	2.9	2.9	3.3
Residual Fuel Oil	1.4	1.5	1.4	1.4	1.3	1.4	1.5	1.5	1.3	1.3	1.4	1.6
Other	3.6	3.5	3.5	3.3	3.5	3.6	3.4	3.7	3.9	3.9	3.7	3.6
Total	16.1	16.2	16.3	15.9	16.0	16.0	16.3	16.6	15.9	16.6	16.2	17.1

Souce: Energy Information Administration, Weekly Status Reports.

Stocks of Motor Gasoline

(Add 000,000 bbl.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1988												
Finished Motor Gasoline	200.1	202.3	193.9	189.5	188.5	173.8	177.9	182.4	181.9	180.0	183.7	189.7
Leaded	54.3	51.7	48.9	47.2	45.1	42.9	44.5	44.5	42.1	38.6	38.1	40.1
Unleaded	145.8	150.7	145.0	142.3	143.3	130.8	133.5	137.8	139.9	141.4	145.6	149.6
Blending Components	39.4	38.3	37.3	36.4	37.2	35.2	35.8	36.2	38.6	37.3	37.4	38.6
Total Gasoline	89.5	240.7	231.3	226.0	225.6	209.0	213.8	218.6	220.6	217.3	221.1	228.2
East Coast	67.6	70.6	68.0	63.4	63.1	59.4	61.8	61.0	60.6	58.5	60.7	62.5
Midwest	63.2	66.2	66.2	62.8	63.3	54.9	55.6	60.6	61.2	58.4	58.4	59.8
Gulf Coast	68.6	64.6	60.8	62.0	62.5	61.3	62.9	63.2	61.1	63.2	64.4	64.9
Rocky Moutain	7.4	7.9	7.6	7.1	6.8	6.2	5.7	5.8	6.1	6.3	6.7	7.5
West Coast	32.6	31.4	28.7	30.6	29.9	27.2	27.8	28.0	31.5	30.8	30.9	33.5
1987												
Finished Motor Gasoline	210.6	206.6	205.0	201.0	195.9	192.6	188.9	188.0	191.2	181.8	188.1	188.8
Leaded	70.7	68.7	65.1	59.4	57.6	55.6	54.7	53.8	55.0	51.6	53.5	53.1
Unleaded	139.9	138.9	139.9	141.6	138.4	136.9	134.2	134.2	136.2	130.2	134.6	135.7
Blending Components	40.5	43.5	43.1	40.8	39.0	37.9	37.5	38.5	38.5	36.2	37.1	37.4
Total Gasoline	251.1	250.1	248.2	241.8	234.9	230.4	226.5	229.5	229.6	218.0	225.2	226.2
East Coast	74.3	68.5	69.0	68.9	65.5	66.7	69.5	67.0	64.4	59.9	63.1	63.0
Midwest	71.4	70.2	68.5	66.3	63.5	58.0	56.7	59.9	61.2	57.5	61.9	61.2
Gulf Coast	68.3	72.9	73.6	68.0	66.4	66.9	63.4	63.6	66.4	65.1	64.6	65.9
Rocky Mountain	8.0	8.5	8.4	8.0	7.4	6.1	5.4	5.7	6.1	5.7	6.1	6.8
West Coast	29.1	30.0	29.5	30.5	32.1	32.7	31.5	30.4	31.5	29.9	29.5	29.4

Stocks of Distillate Fuel Oil

(Add 000,000 bbl.)

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1988												
Total U.S.	127.1	109.6	89.3	94.3	104.4	110.7	119.4	125.2	131.0	127.9	128.7	123.5
East Coast	47.6	44.1	33.1	30.1	35.2	37.8	44.6	52.1	56.8	56.5	54.5	49.2
Midwest	34.3	29.8	23.3	26.5	28.8	29.6	30.5	31.0	30.4	28.6	29.2	31.3
Gulf Coast	31.5	23.1	21.5	24.4	25.3	27.3	28.9	28.3	28.7	28.7	29.8	28.2
Rocky Mountain	3.3	3.2	2.3	2.4	2.9	3.2	3.2	3.0	2.7	2.5	2.7	2.8
West Coast	10.4	9.4	9.2	10.8	12.2	12.7	12.3	10.9	12.3	11.5	12.4	12.0
1987												
Total U.S.	141.3	123.7	109.3	100.3	101.3	104.4	114.8	124.7	126.8	121.0	128.0	134.5
East Coast	65.3	48.8	41.5	36.1	34.6	37.1	44.8	50.5	52.4	53.4	52.1	53.8
Midwest	34.0	33.3	30.3	29.1	28.7	28.8	29.8	31.9	31.5	26.7	33.1	34.6
Gulf Coast	27.7	27.6	24.0	22.6	24.0	25.0	27.6	29.5	29.4	28.2	29.2	31.5
Rocky Mountain	3.2	3.3	3.1	2.7	2.7	2.5	2.5	2.6	2.6	2.3	2.6	3.1
West Coast	11.1	10.8	10.4	9.8	11.4	11.0	9.9	10.2	10.8	10.4	11.0	11.5

Stocks of Residual Fuel Oil

(Add 000,000 bbl.)

	Jan.	Feb.	Mar.	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
1988												
Total U.S.	46.6	45.5	44.1	43.2	45.7	42.1	41.1	37.8	44.2	42.4	45.1	45.5
East Coast	19.6	19.6	17.7	16.1	18.1	16.4	16.5	14.9	19.3	17.6	18.7	18.8
Midwest	3.2	3.1	2.9	3.2	3.2	3.4	3.8	3.5	3.4	3.6	3.4	3.5
Gulf Coast	14.8	14.6	14.3	15.3	15.5	14.2	12.3	10.8	12.0	11.5	12.5	12.4
Rocky Mountain	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7
West Coast	8.6	7.8	8.9	8.2	8.4	7.7	8.0	8.0	9.0	9.1	9.9	9.2
1987												
Total U.S.	44.9	38.1	39.3	35.9	40.4	41.4	44.7	45.1	44.4	45.7	50.0	47.4
East Coast	21.5	17.4	16.7	15.6	17.9	19.2	19.8	21.3	21.2	21.2	23.0	23.1
Midwest	2.8	2.7	3.1	3.1	2.8	2.7	2.9	3.0	2.9	2.5	3.1	3.0
Gulf Coast	11.9	10.4	10.6	9.3	11.1	11.6	13.4	12.1	10.9	13.1	13.4	12.6
Rocky Mountain	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4
West Coast	8.4	7.4	8.6	7.5	8.2	7.4	8.3	8.9	9.0	8.4	10.0	8.3

Source: Energy Information Administration, Weekly Statistical Reports.

Refinery and Bulk Terminal Stocks By States and PAD Regions—1988

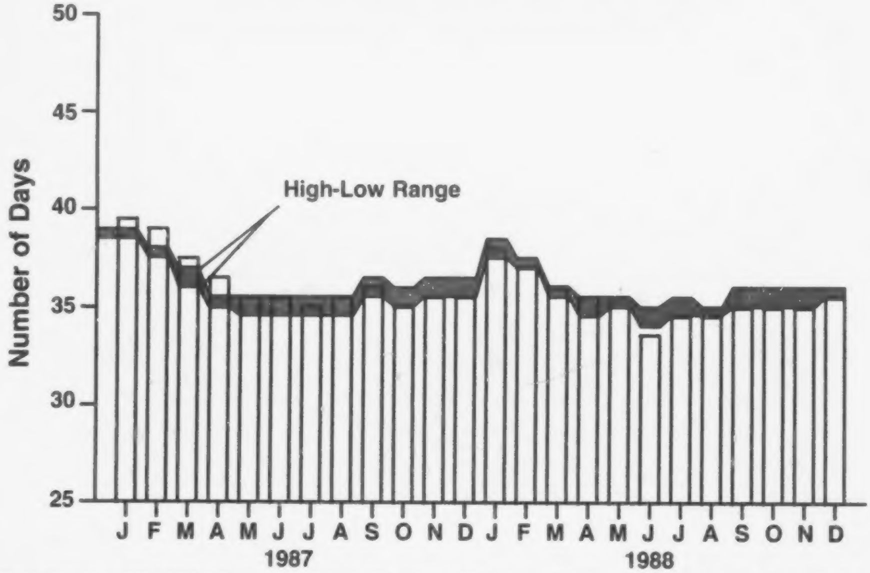
(Add 000 bbl.)

State	Leaded Gasoline	Unleaded Gasoline	Kerosine	Distillate	Residual
PAD District 1					
Connecticut	273	1,268	258	2,263	280
Delaware, D.C., Maryland	231	2,054	247	3,453	1,918
Florida	915	5,389	156	2,118	588
Georgia	783	1,910	124	1,407	141
Maine, New Hampshire, Vermont	132	984	187	2,234	734
Massachusetts	77	2,443	82	1,805	1,227
New Jersey	669	7,591	75	11,074	7,507
New York	721	3,653	396	5,545	3,595
North Carolina	635	1,953	327	1,418	541
Pennsylvania	881	4,908	519	5,322	1,445
Rhode Island	30	832	w	711	w
South Carolina	290	1,240	171	891	w
Virginia	453	2,937	119	2,336	338
West Virginia	68	219	w	147	w
TOTAL	**6,158**	**37,381**	**2,704**	**40,724**	**18,803**
PAD District 2					
Illinois	1,973	4,720	260	4,413	1,453
Indiana	1,144	4,218	216	3,120	495
Iowa	473	1,183	w	1,332	w
Kansas-Nebraska	1,117	2,063	43	2,151	57
Kentucky	448	1,139	53	943	w
Michigan	832	2,970	167	2,184	187
Minnesota	488	1,284	w	1,414	346
Missouri	494	1,042	w	864	w
North & South Dakota	263	491	w	715	w
Ohio	708	3,305	522	2,177	208
Oklahoma	974	1,203	w	1,697	233
Tennessee	475	1,350	66	1,130	205
Wisconsin	611	1,639	w	1,329	27
TOTAL	**10,000**	**26,607**	**1,730**	**23,469**	**3,478**
PAD District 3					
Alabama	406	1,118	95	737	682
Arkansas	193	336	w	202	w
Louisiana	1,233	4,483	405	5,083	4,799
Mississippi	660	2,078	29	1,883	w
New Mexico	218	256	w	267	4
Texas	3,691	15,034	663	11,127	6,686
TOTAL	**6,401**	**23,305**	**1,198**	**19,299**	**12,355**
PAD District 4					
Colorado	474	771	w	352	w
Idaho	183	253	w	245	w
Montana	478	472	w	566	115
Utah	233	311	w	472	139
Wyoming	352	563	w	636	w
TOTAL	**1,720**	**2,370**	**42**	**2,271**	**663**
PAD District 5					
Alaska	401	528	w	798	w
Arizona	240	412	w	214	w
California	3,906	10,530	86	6,463	4,658
Hawaii	112	511	w	563	w
Nevada	125	211	w	188	w
Oregon	697	733	w	885	221
Washington	1,387	2,264	w	1,541	2,053
TOTAL	**6,868**	**15,189**	**204**	**10,652**	**8,970**
U.S. Total	**31,147**	**104,852**	**5,878**	**96,415**	**44,269**

W = Withheld to avoid disclosure of individual company data.

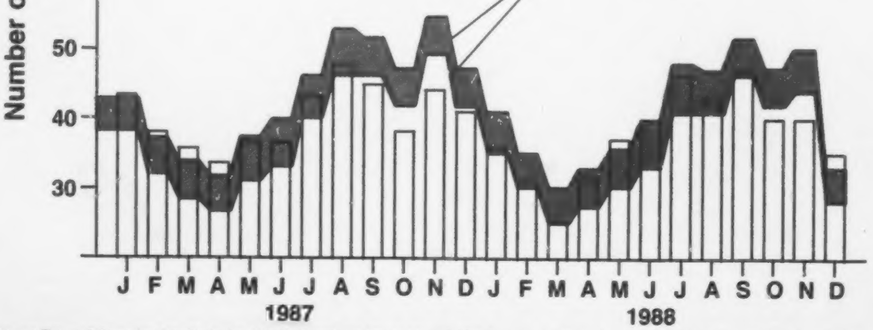
Source: Energy Information Administration, Petroleum Supply Monthly, Table 25, December 1988, published March 1989.

Gasoline Inventories Number of Days Supply



Source: Energy Information Administration, Weekly Petroleum Status Report. High-low range is based on lowest and highest values of past three years. Graph by NPN.

Distillate Inventories Number of Days Supply



Source: Energy Information Administration, Weekly Petroleum Status Report. High-low range is based on lowest and highest values of past three years. Graph by NPN.

U.S. Crude Oil Production — 1987-1978

(Thousands of b/d)

	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
PAD District 1										
Florida	22.7	25.7	31.4	39.6	53.4	70.2	95.3	117.2	129.2	130.2
New York	1.9	2.3	2.9	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Pennsylvania	9.0	10.4	13.3	11.7	11.7	11.7	10.2	7.2	7.9	7.9
Virginia	**	**	**	**	0.2	0.1	**	**	**	**
West Virginia	7.8	8.6	9.7	9.7	9.9	8.9	9.5	6.4	6.6	6.5
Total	**41.4**	**47.0**	**57.3**	**63.3**	**77.5**	**93.2**	**117.3**	**133.1**	**146.0**	**146.9**
PAD District 2										
Illinois	65.7	74.6	82.9	79.1	80.0	75.9	66.0	62.0	59.7	64.0
Indiana	10.2	13.0	14.2	15.1	14.6	15.2	12.9	13.6	12.9	12.8
Kansas	164.1	183.7	206.6	207.5	196.1	193.2	180.3	164.3	156.2	155.0
Kentucky	15.7	17.7	21.3	21.3	21.6	20.2	17.9	16.2	15.1	15.7
Michigan	71.2	70.4	74.8	83.7	86.9	86.2	89.5	97.8	95.5	95.0
Missouri	0.3	0.3	0.6	0.8	0.7	0.6	0.6	0.3	0.2	0.1
Nebraska	16.7	19.4	19.0	17.7	17.5	18.8	18.3	17.0	16.6	16.1
North Dakota	113.3	125.0	139.3	144.3	138.9	129.5	124.4	110.2	84.7	68.0
Ohio	33.3	36.8	41.1	41.8	41.0	39.9	37.1	35.3	32.8	30.6
Oklahoma	368.2	386.6	445.9	461.3	434.5	434.6	422.1	410.2	393.6	412.2
South Dakota	4.5	4.3	4.4	3.7	3.2	3.2	2.7	2.1	2.3	2.4
Tennessee	1.7	2.1	2.9	3.3	3.6	3.7	3.2	2.4	1.9	1.8
Total	**864.8**	**933.6**	**1,052.4**	**1,078.8**	**1,037.9**	**1,020.4**	**974.4**	**931.1**	**871.3**	**873.6**
PAD District 3										
Alabama	56.5	57.9	59.1	54.3	51.4	54.8	56.6	60.5	52.5	54.3
Arkansas	39.0	43.2	52.2	51.3	51.6	51.6	50.3	49.8	51.7	55.7
Louisiana	1,304.2	1,403.0	1,392.4	1,411.7	1,313.9	1,255.9	1,231.0	1,281.8	1,341.6	1,459.6
Mississippi	77.0	82.2	83.9	89.8	86.2	90.5	93.7	98.2	102.3	115.1
New Mexico	198.2	207.4	215.2	217.4	205.9	194.6	196.1	205.1	218.2	228.4
Texas	2,067.8	2,300.3	2,435.2	2,478.8	2,473.0	2,535.1	2,589.4	2,670.6	2,789.3	2,942.6
Total	**3,826.8**	**4,094.0**	**4,238.0**	**4,303.4**	**4,182.0**	**4,182.5**	**4,217.1**	**4,366.0**	**4,555.6**	**4,855.7**
PAD District 4										
Colorado	78.9	80.3	82.9	79.0	79.6	83.7	83.0	81.4	86.5	100.8
Montana	68.7	74.2	81.6	81.5	80.1	84.7	84.4	80.0	82.1	83.5
Utah	98.3	107.3	111.8	95.0	80.9	61.5	70.9	68.2	76.0	85.9
Wyoming	315.8	332.4	352.1	340.5	324.1	324.1	357.7	345.2	361.3	376.4
Total	**561.4**	**594.2**	**628.4**	**596.0**	**564.7**	**554.0**	**596.0**	**574.8**	**607.9**	**646.6**
PAD District 5										
Alaska	1,961.5	1,866.6	1,825.3	1,727.1	1,713.8	1,695.6	1,609.1	1,616.6	1,400.9	1,229.1
Arizona	0.4	0.4	0.5	0.6	0.6	0.9	1.0	1.1	1.3	1.1
California	998.9	1,114.2	1,161.3	1,128.8	1,108.7	1,100.2	1,054.7	975.2	965.1	951.2
Nevada	8.5	8.0	8.3	5.2	2.2	1.7	1.9	2.4	3.4	3.2
Total	**2,969.3**	**1,989.2**	**2,995.4**	**2,861.7**	**2,825.3**	**2,798.4**	**2,666.7**	**2,595.3**	**2,370.7**	**2,184.6**
Total U.S.	**8,263.8**	**8,680.1**	**8,972**	**8,903**	**8,688**	**8,648**	**8,571**	**8,600**	**8,551**	**8,707**

**Less than 100 barrels per day.

Source: American Petroleum Institute Data Book January 1989.

IPAA's New Outlook: Demand Strong, But Imports Could Exceed U.S. Crude Output

(Add 000 b/d)

	1st Qtr	2nd Qtr	1989 Forecast 3rd Qtr	4th Qtr	1989 Average	1988-89 % Chg.
DEMAND						
Domestic Products			(Add 000 b/d)			
Motor Gasoline	7,044	7,593	7,567	7,391	7,400	1.2%
Aviation Fuels	1,552	1,474	1,506	1,542	1,518	3.1
Middle Distillates	3,566	2,990	2,920	3,450	3,230	0.9
Residual Fuel Oil	1,516	1,228	1,279	1,476	1,374	3.4
Other Products	3,855	3,769	4,083	4,054	3,942	2.3
Domestic Demand	17,533	17,054	17,355	17,913	17,464	1.7
Total Exports	843	787	764	796	797	(2.7)
TOTAL DEMAND	**18,376**	**17,841**	**18,119**	**18,709**	**18,261**	1.5
SUPPLY						
Domestic Production						
Crude Oil	7,856	7,731	7,823	7,792	7,800	(4.0)
Natural Gas Liquids	1,624	1,592	1,571	1,601	1,597	(1.4)
Total Production	**9,480**	**9,323**	**9,394**	**9,393**	**9,397**	**(3.6)**
Imports						
Motor Gasoline	436	526	550	475	497	12.7
Aviation Fuels	123	101	100	95	105	19.3
Middle Distillates	377	238	267	360	310	4.7
Residuel Fuel Oil	726	500	525	689	610	3.2
Other Products	728	734	792	954	802	13.8
Total Products	2,390	2,099	2,234	2,573	2,324	9.6
Crude Oil Imports	5,235	5,661	6,048	5,987	5,736	15.1
Total Imports	7,625	7,760	8,282	8,560	8,060	13.5
Other Supply	898	939	898	804	885	(16.8)
TOTAL SUPPLY	**18,003**	**18,022**	**18,574**	**18,757**	**18,342**	**2.4**
Refinery Inputs	13,461	13,909	14,322	14,258	13,991	5.2
CLOSING STOCKS (millions of bbl.)						
Motor Gasoline	232.3	215.0	215.4	225.5	225.5	(1.2)
Aviation Fuels	45.9	46.9	46.3	47.8	47.8	4.4
Middle Distillates	103.0	110.8	136.8	139.9	139.9	7.0
Residual Fuel Oil	42.2	41.5	43.7	45.7	45.7	2.7
Other Products	255.4	282.8	285.4	266.3	266.3	2.6
Total Products	678.8	697.0	727.6	725.2	725.2	2.3
Crude Oil Stocks	327.7	326.0	337.3	344.1	344.1	3.9
TOTAL STOCKS	**1,006.5**	**1,023.0**	**1,064.9**	**1,069.3**	**1,069.3**	**2.8**

Source IPAA Supply and Demand Committee May 1989

The new industry outlook for petroleumn supply and demand, released in May by the Independent Petroleum Assn. of America, sounds an ominous note with respect to U.S. energy security. According to IPAA's latest forecast, annual petroleum imports are expected to exceed domestic crude oil production for the first time since 1977.

U.S. crude output is projected to decline for the fourth consecutive year, a drop of 4% to an average of only 7.0-million b/d, IPAA says. With demand increasing to the highest level (17.5-million b/d) since 1979, however, total U.S. supply will rise 13.5% to an average of 8.1-million b/d. Domestic petroleum imports are forecast to reach 44% of total U.S. supply this year, up 4% from 1987. "The U.S. is rapidly approaching over dependence on imported oil," IPAA concludes.

Domestic Supply Trend

(Add 000,000 bbl.)

Year	All products	Gasoline	Kerosine(a)	Distillate	Residual	LPG	Lubes	Other
1988(b)	6,261	2,670	481	1,132	487	631	58	802
1987	6,083	2,630	465	1,086	461	588	59	794
1986	5,943	2,576	439	1,064	518	555	52	739
1985	5,740	2,493	404	1,047	439	584	53	720
1984	5,756	2,449	391	1,041	501	576	57	741
1983	5,585	2,417	353	982	519	551	53	710
1982	5,568	2,386	339	977	618	443	51	754
1981	5,861	2,404	342	1,032	762	407	56	858
1980	6,932	2,536	397	1,389	1,033	414	58	1,105
1975	5,958	2,436	347	1,041	899	362	50	823
1970	5,364	2,131	358	927	804	363	50	731
1965	4,202	1,720	220	776	587	307	47	545
1960	3,610	1,512	132	685	559	227	43	427

(a) Kerosine includes jet fuel; (b) Preliminary.
Source: Petroleum Supply Monthly, Energy Information Administration, 1988.

U.S. Estimated Petroleum Balance

(Add 000 b/d)

	Full year			4th Quarter			Third Quarter			2nd Quarter		
Petroleum Products Supplied From Primary Storage (a)	1988	1987	% Chng.	1988	1987	% Chng.	1988	1987	% Chng.	1988	1987	% Chng.
Products Supplied:												
Motor gasoline, total	7,320	7,206	1.6%	7,355	7,237	1.6%	7,397	7,377	0.3%	7,446	7,438	0.1%
Finished leaded gasoline	1,331	1,736	(23.3)	1,173	1,590	(26.2)	1,302	1,731	(24.8)	1,416	1,887	(25.0)
Finished unleaded gasoline	5,989	5,470	9.5	6,182	5,647	9.5	6,095	5,646	8.0	6,030	5,551	8.6
Naphtha-jet	211	204	3.4	216	200	8.0	215	221	(2.7)	212	207	2.4
Kerosine-jet	1,243	1,181	5.2	1,310	1,231	6.4	1,196	1,168	2.4	1,144	1,130	1.2
Distillate fuel oil	3,09[illegible]	2,977	3.9	3,266	3,136	4.1	2,784	2,700	3.1	2,795	2,820	(0.9)
Residual fuel oil	1,330	1,264	5.2	1,496	1,236	21.0	1,167	1,270	(8.1)	1,191	1,138	1.2
All other oils	4,175	4,071	2.6	4,432	4,147	6.9	4,226	4,225	0.0	3,828	3,935	(2.7)
Reclassified	(17.4)	(238)	(26.9)	(179)	(270)	(33.7)	(160)	(251)	(36.3)	(200)	(212)	(5.7)
Total domestic products supplied	17,198	16,665	3.2	17,896	16,917	5.8	16,825	16,710	0.7	16,416	16,456	(0.2)
Exports	796	764	4.2	730	814	(10.3)	864	712	21.4	764	734	4.1
Total Products Supplied	17,994	17,429	3.2	18,626	17,731	5.0	17,689	17,422	1.5	17,180	17,190	(0.1)
Supply:												
Domestic production												
Crude oil	8,111	8,349	(2.9)	7,982	8,359	(4.5)	8,045	8,222	(2.2)	8,207	8,371	(2.0)
Natural gas liquids	1,621	1,595	1.6	1,655	1,620	2.2	1,608	1,578	1.9	1,604	1,584	1.3
Other supply	1,010	841	20.1	826	782	5.6	1,077	836	28.8	1,042	882	18.1
Total domestic supply	10,742	10,785	(0.4)	10,463	10,761	(2.8)	10,730	10,636	0.9	10,853	10,837	0.1
Imports:												
Crude oil, total (b)	5,034	4,601	9.4	5,371	4,857	10.6	5,057	5,239	(3.5)	5,132	4,354	17.9
Canadian	677	608	11.3	658	599	9.8	653	632	3.3	697	656	6.3
Other	4,357	3,993	9.1	4,713	4,258	10.7	4,404	4,607	(4.4)	4,435	3,698	19.9
Products, total	2,158	2,004	7.7	2,491	2,058	21.0	1,940	2,102	(7.7)	1,905	1,824	4.4
Residual Fuel oil	593	565	5.0	744	544	36.8	498	587	(15.2)	451	487	(7.4)
Other	1,565	1,439	8.8	1,747	1,514	15.4	1,442	1,515	(4.8)	1,454	1,337	8.8
Total imports	7,192	6,605	8.9	7,862	6,915	13.7	6,997	7,341	(4.7)	7,037	6,178	13.9
Total supply	17,934	17,390	3.1	18,325	17,676	3.7	17,727	17,977	(1.4)	17,890	17,015	5.1

(a) 1988 data are preliminary; (b) Does not include SPR imports or reserves.
Source: American Petroleum Institute, Monthly Statistical Reports, 1988.

U.S. Refinery Operations

(Add 000 b/d)

	Full Year			4th Quarter			3rd Quarter			2nd Quarter		
U.S. Refinery Operations (a)	1988	1987	% Chng.	1988	1987	% Chng.	1988	1987	% Chng.	1988	1987	% Chng.
Input to crude distillation units	13,427	13,003	3.3	13,337	13,118	1.7	13,780	13,491	2.1	13,580	12,929	5.0
Operable capacity	15,919	15,643	1.8	15,929	15,808	0.8	15,929	15,631	1.9	15,965	15,573	2.5
Refinery utilization (%)	83.3	83.1	1.4	83.7	83.0	0.8	86.5	86.3	0.2	85.1	83.0	2.5
Crude oil runs	13,281	12,854	3.3	13,213	12,975	1.8	13,641	13,328	2.3	13,387	12,787	4.7

(a) Preliminary for 1988.
Source: American Petroleum Institute, Monthly Statistical Reports, 1988.

Crude Oil and Product Inventories

(Add 000,000 bbl.)

	4th Quarter			3rd Quarter			2nd Quarter			1st Quarter		
Stocks	1988	1987	% Chng.	1988	1987	% Chng.	1988	1987	% Chng.	1988	1987	% Chng.
Crude oil (a)	332.8	349.0	(4.6)	324.0	337.2	(3.9)	358.8	327.6	9.5	344.7	333.4	3.4
Unfinished oils	98.8	93.2	6.0	108.2	103.0	5.1	111.6	102.4	9.0	101.4	107.6	(5.8)
Total motor gasoline(b)	228.8	226.2	1.1	221.3	229.6	(3.6)	209.7	230.4	(9.0)	229.9	249.2	(7.7)
Finished leaded gasoline	40.7	53.1	(23.4)	41.5	55.0	(24.6)	42.7	55.6	(23.2)	48.5	65.3	(25.7)
Finished unleaded gasoline	148.9	135.7	9.7	141.3	136.2	3.7	132.1	136.9	(3.5)	144.4	140.5	2.8
Naphtha-jet	6.3	8.0	(21.2)	6.6	6.5	1.5	6.7	7.3	(8.2)	6.7	6.7	—
Kerosine-jet	37.6	42.0	(10.5)	41.5	43.7	(5.0)	38.8	38.7	0.3	38.9	41.4	(6.0)
Distillate fuel oil	127.0	134.5	(5.6)	129.9	126.8	2.4	111.3	104.4	6.6	91.6	110.0	(16.7)
Residual fuel oil	44.4	47.4	(6.3)	44.3	44.4	(0.2)	41.1	41.4	(0.7)	42.1	39.6	6.3
All other oils	169.4	166.5	1.7	188.3	180.6	4.3	199.8	168.6	18.5	165.6	152.5	8.6
Total all oils	1,045.1	1,066.8	(2.0)	1,064.1	1,071.8	(0.7)	1,077.8	1,020.8	5.6	1,020.9	1,040.4	(1.9)

(a) Does not include Strategic Petroleum Reserve; (b) Total includes leaded and unleaded and blending components.

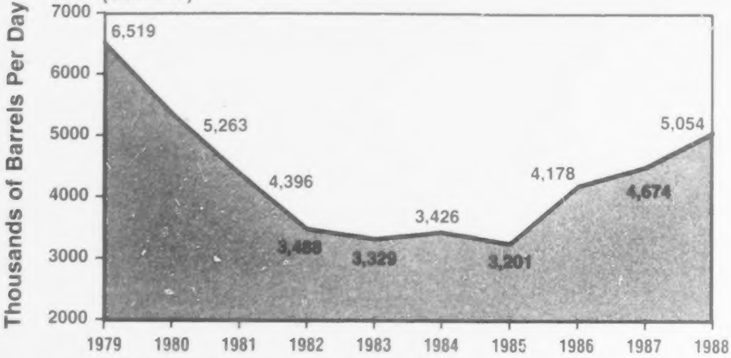
Petroleum Product Consumption—1987

(Add 000 bbl.)

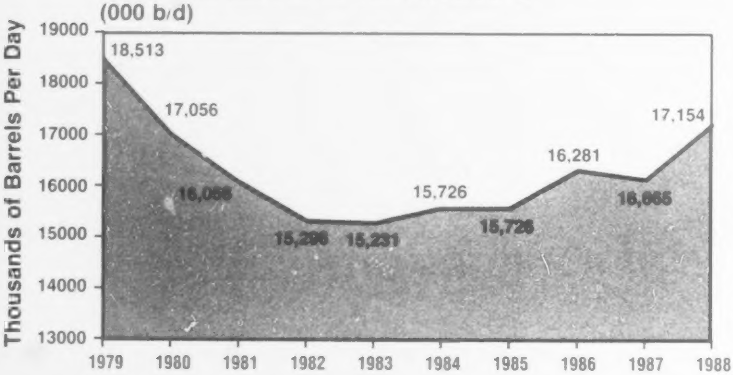
	Motor Gasoline	Aviation Fuels	Middle Distillates (a)	Residual Fuel Oil	Asphalt	Propane	All Other (b)	Total Products
Alabama	45,821	3,086	20,834	2,002	5,015	3,072	12,359	92,189
Alaska	5,866	15,119	7,328	11,586	264	217	6,252	46,632
Arizona	37,872	5,859	8,716	9	2,561	960	8,666	64,643
Arkansas	28,459	939	12,906	97	1,046	3,207	7,223	53,877
California	317,257	76,967	82,662	49,462	16,914	11,180	85,840	640,282
Colorado	39,118	8,008	9,904	281	3,197	2,656	9,779	72,943
Connecticut	31,714	1,589	13,311	24,806	2,198	1,156	11,577	86,351
Delaware	6,549	5,110	4,321	1,543	627	1,268	3,006	22,424
~~Dist. of~~ Columbia	3,927	0	3,001	367	271	0	1,171	8,737
Florida	137,148	19,962	32,650	35,629	8,262	7,267	37,299	278,217
Georgia	76,881	17,254	23,122	2,424	6,501	5,364	20,366	151,912
Hawaii	7,869	8,883	2,993	14,947	408	436	5,502	41,038
Idaho	10,652	452	5,033	21	513	441	2,649	19,761
Illinois	96,755	1,536	29,230	2,552	6,490	7,253	22,266	166,082
Indiana	58,340	17,765	28,900	1,541	7,810	4,430	18,391	137,177
Iowa	32,427	657	16,430	17	1,838	4,448	8,642	64,459
Kansas	55,490	3,595	27,583	706	2,686	23,919	17,646	131,625
Kentucky	42,985	4,219	20,133	392	2,776	3,070	11,391	84,966
Louisiana	63,182	25,091	43,711	32,520	2,338	11,371	27,591	205,804
Maine	13,739	632	7,221	10,530	948	517	6,200	39,787
Maryland	43,862	2,367	18,274	36,073	5,043	1,566	16,595	123,780
Massachusetts	59,305	7,127	46,468	1,600	1,520	9,131	19,376	144,527
Michigan	97,689	6,389	23,122	1,600	3,883	9,131	21,956	163,770
Minnesota	45,702	6,726	16,928	993	6,022	4,547	12,528	93,446
Mississippi	35,799	6,382	21,048	639	2,234	8,661	11,575	86,338
Missouri	58,789	6,758	17,412	776	4,472	4,391	14,336	106,934
Montana	11,146	1,850	5,890	115	1,814	1,189	3,407	25,411
Nebraska	17,630	856	11,585	10	1,276	2,429	5,229	39,005
Nevada	14,299	3,939	6,160	210	888	711	4,057	30,264
New Hampshire	7,391	156	8,162	1,894	801	929	2,993	22,326
New Jersey	99,754	39,400	73,040	32,792	5,751	2,855	39,262	292,854
New Mexico	18,509	1,317	8,835	114	2,126	4,823	5,531	41,255
New York	118,538	2,539	56,692	54,420	7,095	5,046	37,828	282,158
North Carolina	76,698	5,189	30,056	6,544	4,407	6,015	19,958	148,867
North Dakota	8,362	427	6,980	245	976	3,032	3,100	23,122
Ohio	105,839	10,404	38,737	1,870	10,024	4,685	26,561	198,120
Oklahoma	50,427	6,758	18,494	999	2,805	5,919	13,222	98,624
Oregon	31,510	2,543	15,926	2,358	2,200	1,225	8,633	64,395
Pennsylvania	112,646	9,545	54,576	21,280	7,240	5,496	32,634	243,417
Rhode Island	12,986	594	7,976	2,565	1,938	369	4,092	30,520
South Carolina	37,433	796	12,513	2,800	2,660	2,992	9,165	68,359
South Dakota	8,719	1,013	5,305	2	693	951	2,583	19,266
Tennessee	64,997	5,077	27,443	421	5,105	2,486	16,338	121,867
Texas	304,142	92,323	132,089	33,923	12,950	76,497	100,932	752,856
Utah	18,866	4,717	7,589	642	1,468	1,119	5,326	39,727
Vermont	2,752	26	2,113	276	537	511	962	7,177
Virginia	66,434	10,834	30,366	9,522	4,832	2,373	19,254	143,615
Washington	54,136	16,103	24,984	9,816	2,331	1,993	16,932	126,295
West Virginia	15,077	194	7,002	958	551	288	3,727	27,797
Wisconsin	48,264	1,156	20,169	231	2,462	3,831	11,784	87,897
Wyoming	7,297	245	8,034	407	1,510	3,009	3,174	23,676
TOTAL U.S.	2,767,044	470,473	1,163,959	422,832	180,279	262,668	815,487	6,082,742

(a) Middle distillates include kerosine; (b) All other includes naphtha, lubricants, waxes, petroleum coke and still gas.
Source: Independent Petroleum Assn. of America, "The Oil and Gas Producing Industry in Your State," 1988.

CRUDE OIL IMPORTS
(000 b/d)



DOMESTIC SUPPLY OF OIL PRODUCTS
(000 b/d)



Source: Department of Energy

Unleaded Gasoline: The Growth by Years

(Add 000 b/d)

	Total Gasoline Consumption	Unleaded Gasoline Consumption	Unleaded Percent of total
1988 Average	**7,314**	**5,980**	**81.8%**
January	6,679	5,392	80.7
February	7,004	5,571	79.5
March	7,265	5,845	80.4
April	7,384	5,946	80.5
May	7,269	5,813	80.0
June	7,838	6,356	81.1
July	7,473	6,126	82.0
August	7,511	6,191	82.4
September	7,349	6,056	82.5
October	7,287	5,992	82.2
November	7,369	6,149	83.4
December	7,342	6,306	85.9
1987 Average	**7,206**	**5,470**	**75.9**
January	6,535	4,822	73.8
February	6,796	5,068	74.6
March	6,964	5,193	74.6
April	7,314	5,405	73.9
May	7,460	5,569	74.7
June	7,539	5,678	75.3
July	7,581	5,740	75.7
August	7,338	5,656	77.1
September	7,205	5,536	76.8
October	7,305	5,636	77.1
November	7,151	5,589	78.2
December	7,251	5,715	78.8
1986 Avg.	**7,034**	**4,854**	**69.0**
1985 Avg.	**6,831**	**4,406**	**64.5**
1983 Avg.	**6,622**	**3,647**	**55.1**
1981 Avg.	**6,588**	**3,264**	**49.5**
1979 Avg.	**7,034**	**2,798**	**30.8**
1977(a) Avg.	**7,177**	**1,976**	**27.5**

(a) Unleaded was mandated in July, 1977.
Source: Energy Information Administration, Petroleum Supply Monthly. December issue published in March.

Supply and Demand, Principal Products (Add 000 bbl.)

	Motor Gasoline	Aviation Gasoline	Distillate Fuel Oil	Residual Fuel Oil	Jet Fuel (a)	Lubricants	Asphalt
Domestic Supply							
1988(b)	2,696,610	9,809	1,132,230	486,910	524,733	58,638	178,726
1987	2,630,190	9,041	1,086,240	461,360	505,520	58,694	170,285
Production							
1988(b)	2,536,385	9,208	1,045,360	337,625	491,484	62,653	167,511
1987	2,365,565	9,073	996,815	323,025	490,082	60,870	158,434
Imports							
1988(b)	142,350	157	102,100	218,270	102,416	3,645	11,438
1987	140,160	103	93,075	206,225	24,497	5,254	13,271

(a) Includes Naphtha and Kerosine-based fuels; (b) Preliminary including some estimates by NPN.

U.S. Oil Imports (a) (Add 000 b/d)

Year	Crude Oil	Other Products	Residual Fuel Oil	Total Imports	% of Total U.S. Supply
1988(b)	5,054	1,542	598	7,194	41.9%
1987	4,674	1,439	565	6,678	40.0
1986	4,178	1,376	669	6,223	38.2

(a) Does not include Strategic Petroleum Reserve; (b) Preliminary.
Source: Energy Information Administration, Petroleum Supply Monthly.

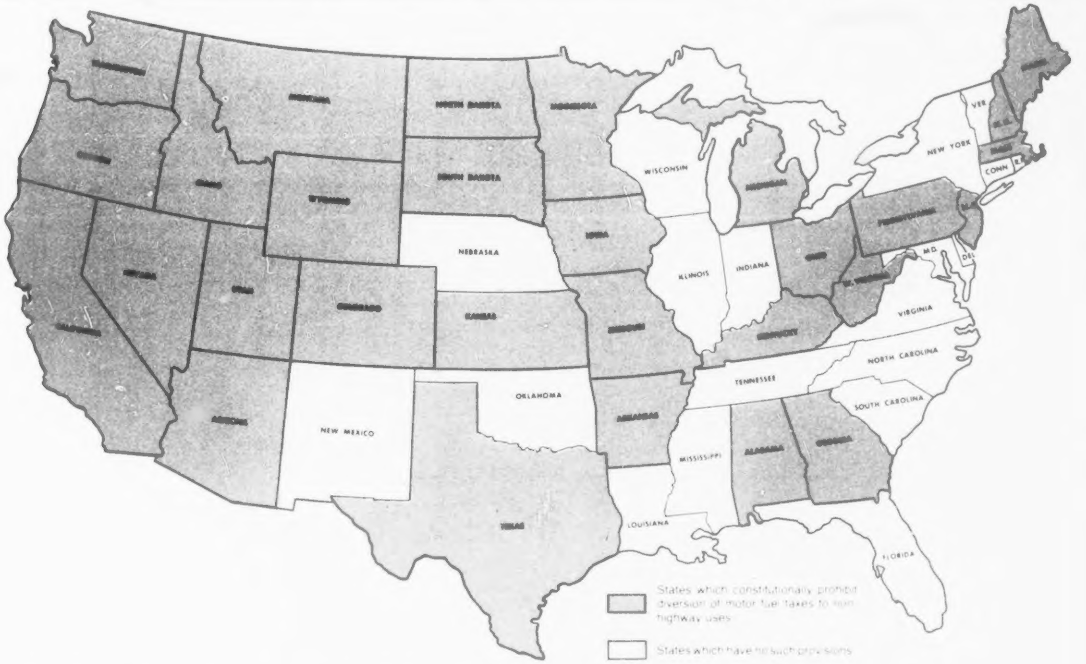
Origins of U.S. Oil Imports

	OPEC Sources		Arab OPEC		Hemispheres	
	000 b/d	% of total imports	000 b/d	% of total imports	Western 000 b/d	Eastern 000 b/d
1988(a)	3,716	51.7%	1,376	19.1%	3,422	4,350
1987	3,060	45.8	1,274	19.1	3,076	3,602
1986	2,387	38.2	1,162	18.7	2,914	3,137

(a) Preliminary.
Source: Energy Information Administration, Petroleum Supply Monthly.

	Total Well Completions			Proved Reserves (a)				Supply (Add 000 b/d)	
Year	Total	Dry	%Dry	Crude Oil (b)	Crude Production/ Reserve Ratio	Natural Gas (c)	Natural Gas Production/ Reserve Ratio	Domestic Crude & Natl. Gas Lqds.	Crude & Product Imports
1988(d)	31,168	9,874	31.7%	27,256	9.5	186.7	9.0	9,815	7,193
1987	34,927	11,292	32.3	26,889	9.0	191.6	9.0	10,080	6,678
1986	38,870	12,415	31.9	28,416	9.3	193.4	8.7	10,289	6,224

(a) As of Jan. 1 of each year; (b)Millions of bbl.; (c) Trillions of cubic feet; (d) Preliminary.
Source: American Petroleum Institute, Basic Data Book, Vol. IX, No. 1 (usually published January each year).


WISCONSIN
NEW YORK
VER
CONN
R.I.
NEBRASKA
ILLINOIS
INDIANA
MD
DEL
VIRGINIA
NORTH CAROLINA
TENNESSEE
SOUTH CAROLINA
OKLAHOMA
NEW MEXICO
MISSISSIPPI
LOUISIANA
FLORIDA
States which constitutionally prohibit diversion of motor fuel taxes to non-highway uses
States which have no such provisions

State Motor Fuel Tax Collections

State	State Gasoline tax rates per gal. in 1988	Total State motor fuel tax revenues(a) (Add 000)		% Change
		1988	1987	
Alabama	13¢	$336,328	$313,507	7.3
Alaska	8	19,338	19,537	-1.0
Arizona	16	309,249	315,429	-2.0
Arkansas	13.5	204,075	203,491	0.3
California	9	1,284,984	1,229,983	4.5
Colorado	18	313,314	295,729	5.9
Connecticut	20	321,707	262,652	21.5
Delaware	16	63,078	51,983	21.3
Dist.ofCol.	15.5	31,046	26,063	19.1
Florida	9.7	702,144	677,321	3.7
Georgia	11	40,484	40,459	0.1
Hawaii	7.5	322,908	314,287	2.7
Idaho	18	96,024	79,216	21.2
Illinois	13	740,335	686,288	7.9
Indiana	15	487,981	517,203	5.7
Iowa	18	295,208	256,945	14.9
Kansas	11	184,156	164,387	12.0
Kentucky	15	339,242	314,183	8.0
Louisiana	16	362,203	366,576	-1.2
Maine	16	118,059	95,251	23.9
Maryland	18.5	440,468	396,650	11.0
Massachusetts	11	306,055	302,157	1.3
Michigan	15	705,450	657,522	7.3
Minnesota	20	447,941	360,672	24.2
Mississippi	17	281,010	142,808	96.8
Missouri	11	357,850	274,286	30.5
Montana	20	107,321	91,442	17.4
Nebraska	18.3	175,148	162,073	8.1
Nevada	18	123,110	99,751	23.4
New Hampshire	14	89,521	87,671	2.1

State	State Gasoline tax rates per gal. in 1987	Total State motor fuel tax revenue(a) (Add 000)		% Change
		1988	1987	
New Jersey	8	404,746	347,482	16.5
New Mexico	14	146,120	120,936	20.8
New York	8	538,990	513,756	4.9
North Carolina	15.7	660,425	598,056	10.4
North Dakota	17	83,308	62,714	32.8
Ohio	14.8	848,126	626,504	35.4
Oklahoma	16	300,851	256,068	17.5
Oregon	14	171,562	159,219	7.8
Pennsylvania	12	997,953	937,291	6.5
Rhode Island	15	65,400	62,535	4.6
South Carolina	15	313,791	285,368	10.0
South Dakota	18	81,369	60,929	33.5
Tennessee	17	540,524	495,635	9.1
Texas	15	1,512,150	1,399,360	8.1
Utah	19	168,394	144,763	16.3
Vermont	13	43,100	41,697	3.4
Virginia	17.5	631,550	553,085	14.2
Washington	18	447,120	418,705	6.8
West Virginia	10.5	103,530	106,023	-2.4
Wisconsin	20.9	503,521	442,177	13.9
Wyoming	8	41,549	36,989	12.3
Total	-	**$18,209,8156**	**$16,474,814**	**10.5%**
& change from prior year		**10.5%**	**10.3%**	

(a) Estimated for 1988. Both 1988 and 1987 totals include some miscellaneous "other receipts," however. These are smallish amounts. The bulk of the taxes herein are for gasoline. The totals do NOT include diesel fuel or LPG taxes.

Source: Federal Highway Administration, Table SS87-2, published October 1988.

State and Federal Gasoline Taxes—1988

(¢ per gal.)

	State gasoline tax rate	State gasohol tax rate	State diesel tax rate	State sales or special taxes*	State + 9.0¢ Federal tax
Alabama	13.0	13.0	14.0	—	22.0
Alaska	8.0	0.0	8.0	—	17.0
Arizona	17.0	17.0	17.0	—	26.0
Arkansas	13.5	13.5	12.5	—	22.5
California	9.0	9.0	9.0	yes	18.0
Colorado	18.0	18.0	20.5	—	27.0
Connecticut	20.0	19.0	20.0	yes	29.0
Delaware	16.0	16.0	16.0	—	25.0
Dist. of Col.	15.5	15.5	15.5	—	24.5
Florida	9.7	9.7	9.7	—	18.7
Georgia	7.5	7.5	7.5	yes	16.1
Hawaii	11.0	11.0	11.0	yes	20.0
Idaho	18.0	14.0	18.0	—	27.0
Illinois	13.0	13.0	15.5	yes	22.0
Indiana	15.0	15.0	16.0	yes	24.0
Iowa	20.0	17.0	22.5	—	29.0
Kansas	11.0	11.0	13.0	—	20.0
Kentucky	15.0	15.0	12.0	—	24.0
Louisiana	16.0	16.0	16.0	—	25.0
Maine	15.0	15.0	19.0	—	24.0
Maryland	18.5	18.5	18.5	—	27.5
Massachusetts	11.0	11.0	11.0	—	20.0
Michigan	15.0	15.0	15.0	yes	24.0
Minnesota	20.0	18.0	20.0	—	29.0
Mississippi	18.0	18.0	18.0	yes	27.0
Missouri	11.0	11.0	11.0	—	20.0
Montana	20.0	20.0	20.0	—	29.0
Nebraska	18.2	15.2	18.2	—	27.2
Nevada	18.0	18.0	20.0	—	27.0
New Hampshire	14.0	14.0	14.0	—	23.0
New Jersey	10.5	4.5	13.5	—	19.5
New Mexico	14.2	6.2	16.2	—	23.2
New York	8.0	8.0	10.0	yes	17.0
North Carolina	15.7	15.7	15.7	—	24.7
North Dakota	17.0	13.0	17.0	—	26.0
Ohio	14.8	14.8	14.8	—	23.8
Oklahoma	16.0	16.0	13.0	—	25.0
Oregon	16.0	16.0	16.0	—	25.0
Pennsylvania	12.0	12.0	12.0	yes	21.0
Rhode Island	15.0	15.0	15.0	yes	24.0
South Carolina	16.0	10.0	16.0	—	25.0
South Dakota	18.0	16.0	18.0	—	27.0
Tennessee	17.0	13.0	16.0	—	26.0
Texas	15.0	11.0	15.0	—	24.0
Utah	19.0	19.0	19.0	—	28.0
Vermont	13.0	13.0	14.0	—	22.0
Virginia	17.5	17.5	16.0	yes	26.5
Washington	18.0	16.2	18.0	—	27.0
West Virginia	15.4	15.4	15.4	—	24.4
Wisconsin	20.9	20.0	20.9	—	29.9
Wyoming	8.0	8.0	8.0	—	17.0

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* California: 4.75% sales tax; Connecticut: 2% oil company gross receipts tax; Georgia: 3% tax on retail price; Hawaii: 4% sales tax; Illinois: 6% sales tax; Indiana: 5% sales tax; Michigan: 4% sales tax; Mississippi: 6% sales tax; New York: 4% sales tax and 2.75% of gross receipts from sale of petroleum products; Pennsylvania: 6% franchise tax on gross receipts; Rhode Island: 2% of gross earnings of oil companies; Virginia: 3% of average wholesale price of taxable petroleum products.

Source: National Highway Users Federation, as of 12/31/88.

Net Gasoline Revenues by States (a)

(Thousands of Dollars)

State	1988	1987	1986	1985	1980	State + 9.0¢ Federal Tax on gasoline (a)
Alabama	$269,710	$269,040	$252,869	$245,035	$172,922	22.0¢
Alaska	19,280	19,360	21,258	24,144	26,175	17.0
Arizona	305,280	314,240	294,210	229,543	118,158	25.0
Arkansas	204,075	198,430	197,101	169,804	113,166	22.5
California	1,281,780	1,258,470	1,200,981	1,140,251	854,185	18.0
Colorado	313,220	253,050	244,666	185,088	113,442	27.0
Connecticut	317,265	282,780	238,322	212,053	153,155	29.0
Delaware	63,040	52,920	41,878	39,532	29,319	25.0
Dist.ofCol.	31,000	28,210	25,169	24,753	37,576	24.5
Florida	666,487	631,368	592,452	552,407	417,133	18.7
Georgia	318,450	307,425	293,307	278,403	330,485	16.5
Hawaii	40,480	41,250	39,132	32,609	34,778	20.0
Idaho	95,928	79,895	77,252	78,086	52,793	27.0
Illinois	740,335	726,510	672,139	639,106	388,097	22.0
Indiana	487,885	523,900	512,623	416,034	255,149	24.0
Iowa	294,325	259,925	244,149	193,556	167,463	27.0
Kansas	183,990	162,120	153,857	150,421	118,937	20.0
Kentucky	338,700	307,440	239,069	191,457	187,446	24.0
Louisiana	361,120	368,480	341,887	351,109	188,281	25.0
Maine	117,976	103,180	88,333	85,350	51,652	25.0
Maryland	421,905	378,465	309,172	290,548	186,658	27.5
Massachusetts	305,140	296,120	281,257	285,988	212,035	20.0
Michigan	705,450	683,700	648,462	625,063	473,593	24.0
Minnesota	446,690	359,380	341,399	340,704	204,955	29.0
Mississippi	272,340	174,640	136,846	129,522	127,647	26.0
Missouri	356,070	297,440	215,445	208,208	203,177	20.0
Montana	107,000	91,945	80,177	78,966	51,089	29.0
Nebraska	175,148	163,472	152,691	129,180	104,331	27.3
Nevada	122,620	95,700	78,993	71,662	34,625	27.0
New Hampshire	80,360	78,120	71,115	66,231	48,046	23.0
New Jersey	392,958	308,930	349,050	312,791	288,764	17.0
New Mexico	146,120	127,025	103,709	98,149	69,999	23.0
New York	538,990	526,320	499,707	491,730	474,498	17.0
North Carolina	641,813	572,260	488,511	405,450	295,143	24.7
North Dakota	76,500	56,940	48,648	52,242	33,488	26.0
Ohio	848,126	745,690	604,960	549,637	393,133	23.8
Oklahoma	300,250	210,200	202,212	194,567	129,545	25.0
Oregon	171,220	151,800	141,149	125,967	92,880	23.0
Pennsylvania	992,001	393,160	920,233	892,469	575,891	21.0
Rhode Island	65,400	63,450	55,315	48,403	39,260	24.0
South Carolina	308,850	264,880	254,450	247,003	173,412	24.0
South Dakota	80,325	57,330	51,921	51,406	41,809	27.0
Tennessee	501,880	467,880	391,857	294,541	226,785	26.0
Texas	1,512,150	1,463,400	1,002,272	990,886	480,946	24.0
Utah	167,390	157,886	113,435	112,265	74,074	28.0
Vermont	43,100	39,660	39,004	37,949	21,745	22.0
Virginia	631,235	572,090	441,740	400,424	275,141	26.5
Washington	447,120	430,200	406,527	399,635	254,637	27.0
West Virginia	103,530	93,975	102,883	100,947	101,467	19.5
Wisconsin	503,521	440,181	403,094	374,029	198,684	29.9
Wyoming	39,760	31,680	35,319	34,278	37,576	17.0
Total U.S.	**$17,955,288**	**$16,527,912**	**$14,742,487**	**$13,683,250**	**$9,736,915**	**$23.2¢**
% Change VS Preceding Period	**12.1%**	**7.7%**	**40.5%**	**17.0%**	**32.1%**	**(Avg.)**

(a) Does not include sales and special taxes levied in some states and municipal areas; does not include "other receipts" from gasoline sales.

Sources: Federal highway Administration, Table SS87-2, published October 1988; data for 1988 are estimates.

Auto, Truck and Farm Tire Shipments

Type of Tire
(Add 000)

	Passenger	% of Market	Bus/ Truck	% of Market	Farm Equipment	% of Market	Total of Market Type	% of Total
1988								
Original Equipment	54.131	84.6%	8.801	13.8%	753	1.2%	63.685	23.7%
Replacement	155.292	80.9	33.918	17.7	2.662	1.4	191.872	71.5
Export	9.365	72.4	3.301	25.5	267	2.1	12.933	4.8
Total	**218.788**	**81.5**	**46.020**	**17.1**	**3,682**	**1.4**	**268,490**	—
1987								
Original Equipment	52.913	86.2%	7.845	12.8%	595	1.0%	61.353	23.7%
Replacement	151.892	80.3	34.514	18.3	2.658	1.4	189.064	73.1
Export	5.987	72.3	2.069	25.0	226	2.7	8.282	3.2
Total	**210,792**	**81.5**	**44.428**	**17.2**	**3,479**	**1.3**	**258,699**	—

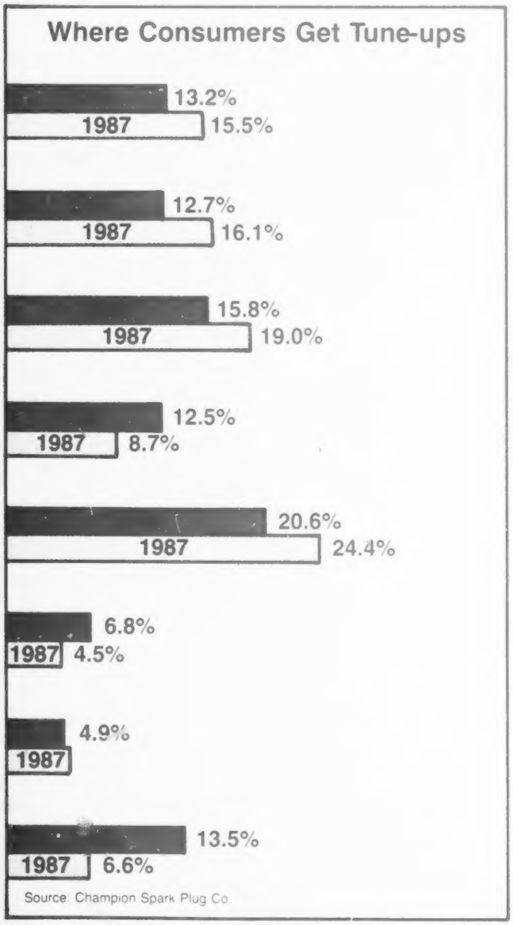
Source: Rubber Manufacturers Assn., Monthly Statistical Report, December, 1988

'88 Shipments Edge Up Again

The tire market has been described as flat by many sources, but the latest data from the Rubber Manufacturers Assn. shows total tire shipments increased by a fairly healthy 3.8% in 1988. The growth in replacement shipments, however, slowed down somewhat last year compared to the impressive 5.6% gain in 1987.

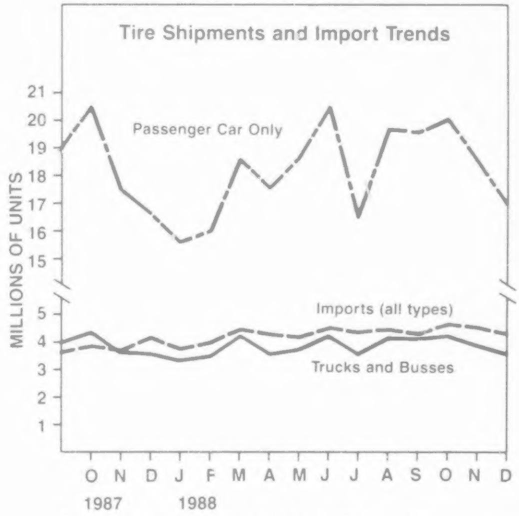
'88 vs. '87	Passenger	Bus/ Truck	Farm Equipment	Total by Type of Market
Original equipment	2.3%	12.2%	26.6%	3.8%
Replacement	2.2	(1.7)	0.1	1.5
Export	56.4	59.5	18.0	56.2
Total	**3.8**	**3.6**	**5.8**	**3.8**

Source: Rubber Manufacturers Assn., Monthly Statistical Report


Where Consumers Get Tune-ups

Source: Champion Spark Plug Co.

N.B. Because the questionnaires were revised and the categories were changed in 1987, the data in this chart are not comparable to prior Factbook issues.


Tire Shipments and Import Trends

Source: Rubber Manufacturers Assn., Monthly Reports, 1988

1986 Ethylene Glycol-Base Antifreeze Sales

(Add 000 gal.)

	Civilian	Government
Packaged ethylene glycol antifreeze sold in quart and gallon sizes	112.152.391	-0-
in drums	9.720.813	(*)
Total	**121,873,204**	**(*)**
Bulk ethylene glycol antifreeze (or ethylene glycol for antifreeze) sold to packagers	55.506.903	1.824.428
Bulk ethylene glycol antifreeze (or ethylene glycol for antifreeze) sold to motor vehicle manufacturers for "drive-away" or factory fill use	13.055.115	-0-
Total	**190,435,222**	**1,824,428**
Grand total (civ. and gov't.)		**192,259,650**

Source: Chemical Specialty Mfrs. Assn.

New Record for Battery Shipments in 1988

Battery shipments (replacement and original equipment) rose by almost 4-million units in 1988, an increase of 5.5% over the 1987 shipments. The new total of 74.7-million units shipped also set an all-time record for the industry. Replacement batteries accounted for the lion's share of the increased volume, moving from 59.9-million units in 1987 to 63.5-million batteries shipped last year. This gave replacements 85% of the battery market, the best market share since 1982. Original equipment battery shipments were up from 10.9-million to 11.2-million in 1988.

(Add 000)

Year	Replacements	% of Market	New cars & trucks	% of Market	Total market	% Change from previous year
1988	63,487	85.0%	11,190	15.0%	74,677	5.5
1987	59,878	84.6	10,910	15.4	70,788	−1.1
1986	60,306	84.2	11,335	15.8	71,641	+1.8
1985	58,684	83.4	11,649	16.6	70,333	—
1984	59,333	84.5	10,925	15.5	70,258	5.0
1983	56,105	83.8	10,823	16.2	66,928	7.9
1982	54,214	87.4	7,819	12.6	62,033	0.8
1981	53,598	87.1	7,956	12.9	61,554	6.0
1980	50,063	86.2	8,009	13.8	58,072	−11.0
1979	53,746	82.4	11,480	17.6	66,226	−6.2
1977	54,601	81.2	12,639	18.8	67,240	10.8
1975	42,582	82.5	8,985	17.6	51,567	−5.3
1970	37,389	81.9	8,239	18.1	45,629	0.5

Source: Replacement battery figures supplied by Battery Council International. New cars and trucks are U.S. factory sales figures provided by Motor Vehicle Manufacturers Assn.

Replacement Batteries

Replacement battery shipments totaled 63.5-million units in 1988, with 12-volt and 6-volt accounting for 87% of the total, according to Battery Council International. Here are the highlights of its annual report.

Replacement Batteries:

Passenger cars and light trucks:

12-volt: 49,564,532, or 78.1% of the total; 6-volt: 772,370, or 1.2% of the total.

Heavy duty commercial:

12-volt: 3,500,972, or 5.5% of the total; 6-volt: 1,487,282, or 2.3% of the total.

Original Equipment:

Passenger cars and light trucks:

12-volt: 11,496,135, or 1.8% of the total; 6-volt: 10,854, or 0.02% of the total.

Heavy duty commercial:

12-volt: 881,397 or 1.4% of the total; 6-volt: 75,394 or 0.1% of the total.

Car Lubrication Service

1989 Crankcase Drain Intervals and Recommended Oil

		Normal Service		Severe Service		
Make	Model	Miles	Months	Miles	Months	Type Of Oil
Eagle	Medallion	7,500	7.5	—	—	SF/CC
	Premier	7,500	7.5	—	—	SG SG/CD
Chrysler Corp.	Turbo	7,500(a)	6(a)	3,000	3	SG SG/CD
	Others	7,500	12	5,000	6	
Ford Motor Co.	Supercharged	5,000	6	3,000	3	SG
	Others	7,500	6	3,000	3	
General Motors	Turbo	3,000	3	3,000	3	SF/CC SF/CD
	Others	7,500	12	3,000	3	SG

(a) Change oil every 3,000 miles or 3 months if SG/CD oil is not used.

Source: Chek-Chart Publications, Simon & Schuster Inc.

1989 Automatic Transmission/Transaxle Drain Intervals and Recommended Fluids

		Normal Service		Severe Service	
Make	Fluid	Months	Miles	Months	Miles
Eagle	MERCON®	30	30,000	—	—
Chrysler Corp.	Dexron®-II(a)	—	—	—	15,000
Ford Motor Co.	MERCON®	—	—	—	30,000
General Motors	Dexron®-II	—	100,000	—	15,000

(a) ATF + or Type 7176 fluid is preferred.

1989 Chassis Lubrication Intervals

	Normal Service		Severe Service			
Make	Months	Miles	Months	Miles	Type	Part or Specification No.
Eagle....................	—	—	—	—	—	—
Chrysler Corp............	36	30,000	18	15,000	#2 Barium EP	4318063
Ford Motor Co. (a)..........	—	15,000	—	—	#2 Lithium EP with polyethylene 8-molybdenum disulfide	M1C75-B
General Motors (b)	12	7,500	6	6,000	#1-2 Multipurpose EP	1050679

(a) Crown Victoria, Grand Marquis, Mustang only.
(b) Not required for GM-10 and 4WD A body models.

Source: Chek-Chart Publications, Simon & Schuster Inc.

U.S. Refineries and Capacities by States

(Crude Oil Capacity on Jan. 1, 1988)

(* after number indicates capacity shut down but capable of being placed in operation within 90 days.)

ALABAMA

Company	b/d
Belcher Oil Co.	
Chickasaw	26,600
GAMXX Energy Inc.	
(Formerly Marion Corp.)	
Theodore	27,000
Hunt Oil Co.	
Tuscaloosa	33,500
LL&E Petroleum Marketing	
Saraland	80,000
Vulcan Refining Co.	
Cordova	9,500
Warrior Asphalt Refining Corp.	
Holt	4,000
Total	180,600

ALASKA

Company	b/d
Arco Alaska Inc.	
Anchorage	12,000
Prudhoe Bay	20,000
Chevron U.S.A. Inc.	
Kenai	22,000
Mapco Petroleum Inc.	
North Pole	90,000
Petro Star	
North Pole	6,700
Tesoro Petroleum Corp.	
Kenai	72,000
Total	222,700

ARKANSAS

Company	b/d
Berry Petroleum Co.	
Stephens	3,700
Cross Oil & Refining Co. of Arkansas	
Smackover	6,700
Lion Oil Co.	
El Dorado	41,000
	7,000*
Total	51,400
	7,000*

CALIFORNIA

Company	b/d
Arco Petroleum Products Co.	
Carson	214,000
Chevron U.S.A. Inc.	
El Segundo	390,000
	15,000*
Richmond	270,000
	80,000*
Conoco Inc.	
Santa Maria	9,500
Edgington Oil Co. Inc.	
Long Beach	41,600
Exxon Co.U.S.A.	
Benicia	126,000
Fletcher Oil & Refining Co.	
Carson	29,500
Gibson Oil & Refining Co. Inc.	
Bakersfield	0
	9,600*
Golden West Refining Co.	
Santa Fe Springs	42,000
Huntway Refining Co.	
Benicia	8,600
Wilmington	5,500
Kern Oil & Refining Co.	
Bakersfield	21,400
Lunday Thagard Co.	
South Gate	8,100
Macmillan Petroleum Co.	
Signall Hill	14,000
Mobil Oil Corp.	
Torrance	123,000
Newhall Refining Co. Inc.	
Newhall	22,500
Oxnard Refinery	
Oxnard	4,000
Pacific Refining Co. Inc.	
Hercules	55,000
Paramount Petroleum Corp.	
Paramount	46,500
Powerine Oil Co.	
Santa Fe Springs	35,000
San Joaquin Refining Co. Inc.	
Bakersfield	14,300
	10,000*
Shell Oil Co.	
Carson	112,000
Martinez	140,100
Sunland Refining Corp.	
Bakersfield	12,000
Texaco Refining & Marketing Inc.	
Bakersfield	41,000
Wilmington	57,000
Tosco Corp.	
Martinez	126,000
Union Pacific Resources Co.	
(Formerly Champlin Petroleum Co.)	
Wilmington	65,000
Unocal Corp.	
Arroyo Grande	41,000
Rodeo	77,000
Wilmington	108,000
West Coast Oil Co.	
Oildale	5,000*
Witco Corp.	
Oildale	0
Total	2,259,600
	119,600*

COLORADO

Company	b/d
Colorado Refining Co.	
(Formerly Asamera Oil (US) Inc.)	
Commerce City	33,500
Conoco Inc.	
Commerce City	43,000
Total	76,500

DELAWARE

Company	b/d
Texaco Refining & Marketing Inc.	
Delaware City	140,000
Total	140,000

FLORIDA

Company	b/d
Seminole Refining Corp.	
St. Marks	0
	17,000*
Total	0
	17,000*

GEORGIA

Company	b/d
Amoco Oil Co.	
Savannah	0
	28,000*
Young Refining Corp.	
Douglasville	5,655
Total	5,655
	28,000*

HAWAII

Company	b/d
Chevron U.S.A. Inc.	
Honolulu	48,000
Hawaiian Independent Refinery Inc.	
Ewa Beach	67,900
Total	115,900

ILLINOIS

Company	b/d
Clark Oil & Refining Corp.	
Blue Island	^{E}64,600
Hartford.E	63,600
Marathon Petroleum Co.	
Robinson	120,000
	75,000*
Mobil Oil Corp.	
Joliet	180,000
Motor Oils Refining Co.	
McCook	1,500
Shell Oil Co.	
Wood River	274,000
Unocal Corp.	
Lemont	151,000
Total	854,700
	75,000*

INDIANA

Company	b/d
Amoco Oil Co.	
Whiting	350,000
Indiana Farm Bureau Cooperative Assn.	
Mount Vernon	21,200
Kentucky Oil & Refining Co.	
Troy	0
	^{E}1,000*
Laketon Refining Corp.	
Laketon	8,700
Rock Island Refining Corp.	
Indianapolis	43,000

Company	b/d
Total	422,900
	^{E}1,000*

KANSAS

Company	b/d
Augusta Refining Co.	
Augusta	0
Derby Refining Co.	
El Dorado	0
	30,400*
Wichita	28,800
Farmland Industries Inc.	
Coffeyville	56,500
Phillipsburg	26,400
National Cooperative Refinery Assn.	
McPherson	75,600
Texaco Refining & Marketing Inc.	
El Dorado	81,500
Total Petroleum Inc.	
Arkansas City	53,600
Total	322,400
	30,400*

KENTUCKY

Company	b/d
Ashland Oil Inc.	
Catlettsburg	213,400
Kentucky Oil & Refining Co.	
Betsy Lane	0
	600*
Somerset Refinery Inc.	
Somerset	5,500
Total	218,900
	600*

LOUISIANA

Company	b/d
Calcasieu Refining Co.	
Lake Charles	13,500
Calumet Refining Co.	
Princeton	4,207
Canal Refining Co.	
Church Point	8,000
Citgo Petroleum Corp.	
Lake Charles	297,000
	23,000*
Claiborne Gasoline Co.	
Lisbon	7,500
Conoco Inc.	
Egan	2,800
Westlake	156,500
Exxon Co. U.S.A.	
Baton Rouge	455,000
Hill Petroleum Co.	
Krotz Springs	56,000
St. Rose	34,700
Kerr-McGee Refining Corp.	
Cotton Valley	7,800
Dubach	10,000
Marathon Petroleum Co.	
Garyville	255,000
Murphy Oil U.S.A. Inc.	
Meraux	78,500
	14,000*
OGC Corp.	
(Formerly Louisiana Oil Refg. Co. of Egan)	
Egan	0
	5,000*
Pennzoil Products Co.	
Shreveport	46,200
Placid Refining Co.	
Port Allen	46,000
Shell Oil Co.	
Norco	215,000
Standard Oil Co.	
Belle Chasse	198,500
Tenneco Oil Co.	
Chalmette	145,000
Texaco Refining & Marketing Inc.	
Convent	225,000
Texas NAPCO Inc.	
St. James	0
	17,000*
Trans America Refining Co.	
Good Hope	0
	300,000*
Total	2,262,207
	359,000*

MICHIGAN

Company	b/d
Crystal Refining Co.	
Carson City	3,000
Marathon Petroleum Co.	
Detroit	68,500
Total Petroleum Inc.	
Alma	42,000
Total	113,500

MINNESOTA

Company	b/d
Ashland Oil Inc.	
St. Paul	67,143
Koch Refining Co.	
St. Paul	155,000
Total	222,143

MISSISSIPPI

Company	b/d
Amerada Hess Corp.	
Purvis	30,000
Chevron U.S.A. Inc.	
Pascagoula	295,000
Ergon Inc.	
Vicksburg	20,600
Petro Source Resources Inc.	
(Formerly Vicksburg Refining Inc.)	
Vicksburg	6,000
Southland Oil Co.	
Lumberton	5,800
Sandersville	11,000
Total	368,400

MONTANA

Company	b/d
Cenex	
Laurel	33,650
	7,800*
Conoco Inc.	
Billings	48,500
Exxon Co. U.S.A.	
Billings	42,000
Flying J Petroleum Inc.	
Cutbank	0
	5,600*
Montana Refining Co.	
Great Falls	6,300
Total	130,450
	13,400*

NEVADA

Company	b/d
Nevada Refining Co.	
Tonopah	4,500
Total	4,500

NEW JERSEY

Company	b/d
Amerada Hess Corp.	
Port Reading	0
Chevron U.S.A. Inc.	
Perth Amboy	80,000
Coastal Eagle Point Oil Co.	
Westville	90,000
Exxon Co. U.S.A.	
Linden	120,000
Mobil Oil Corp.	
Paulsboro	100,000
Seaview Petroleum Inc.	
Paulsboro	44,400
Total	434,400

NEW MEXICO

Company	b/d
Bloomfield Refining Co.	
Bloomfield	16,800
Giant Refining Co.	
Gallup	18,000
Navajo Refining Co.	
Artesia	34,700
Thriftway Co.	
Bloomfield	6,100
Total	75,600

NEW YORK

Company	b/d
Cibro Petroleum Products Inc.	
Albany	41,850
Total	41,850

NORTH CAROLINA

Company	b/d
City Gas & Transmission Corp.	
Wilmington	0
	10,000*
GNC Energy Corp.	
Greensboro	3,000
Total	3,000
	10,000*

NORTH DAKOTA

Company	b/d
Amoco Oil Co.	
Mandan	58,000
Total	58,000

OHIO

Company	b/d
Ashland Oil Inc.	
Canton	66,000
Standard Oil Co.	
Lima	171,000
Toledo	126,100
Sun Co. Inc.	
Toledo	125,000
Total	488,100

OKLAHOMA

Company	b/d
Barrett Refining Corp.	
Thomas	10,500
Conoco Inc.	
Ponca City	134,000
Kerr-McGee Refining Corp.	
Wynnewood	43,000
Sinclair Oil Corp.	
Tulsa	47,000
Sun Co. Inc.	
Tulsa	85,000
Total Petroleum Inc.	
Ardmore	62,000
Total	381,500

OREGON

Company	b/d
Chevron U.S.A. Inc.	
Willbridge	0
Total	0

PENNSYLVANIA

Company	b/d
Atlantic Refining & Marketing Corp.	
Philadelphia	125,000
BP Oil Corp.	
Marcus Hook	172,000
Chevron U.S.A. Inc.	
Philadelphia	174,100
Pennzoil Products Co.	
Rouseville	15,700
Quaker State Oil Refining Corp.	
Smethport	6,700
Sun Co. Inc.	
Marcus Hook	165,000
United Refining Co.	
Warren	60,000
Witco Corp.	
Bradford	8,500
Total	727,000

TENNESSEE

Company	b/d
Mapco Petroleum Inc.	
Memphis	60,000
Total	60,000

TEXAS

Company	b/d
Amber Refining Inc.	
Fort Worth	0
	19,700*
Amoco Oil Co.	
Texas City	400,000
Champlin Refining Co.	
Corpus Christi	155,200
Chevron U.S.A. Inc.	
El Paso	66,000
	10,000*
Port Arthur	328,500
	78,400*
Coastal Refining & Marketing Inc.	
Corpus Christi	90,000
Crown Central Petroleum Corp.	
Pasadena	100,000
Diamond Shamrock Refining & Marketing Co.	
Sunray	100,000
Three Rivers	45,000
Donna Refinery Partners Ltd.	
(Formerly Listo Petroleum Co.)	
Donna	0
	4,750*
El Paso Refining Co. Ltd.	
El Paso	21,600
Exxon Co. U.S.A.	
Baytown	426,000
	67,000*
Fina Oil & Chemical Co.	
Big Springs	55,000
Port Arthur	90,000
Hill Petroleum Co.	
Houston	65,000
Howell Hydrocarbons Corp.	
San Antonio	4,500
Koch Refining Co.	
Corpus Christi	125,000
La Gloria Oil & Gas Co.	
Tyler	46,000
Leal Petroleum Corp.	
Nixon	15,900]
	5,000*
Liquid Energy Corp.	
Bridgeport	0
	10,000*
Lyondell Petrochemical Co.	
Houston	260,000
Marathon Petroleum Co.	
Texas City	69,500
Mobil Oil Corp.	
Beaumont	275,000
Petrolite Corp.	
Kilgore	1,000
Phillips 66 Co.	
Borger	105,000
Sweeny	175,000
Pride Refining Inc.	
Abilene	28,500
	14,250*
Shell Oil Co.	
Deer Park	214,000
Odessa	28,600
South Hampton Refining Co.	
Silsbee	0
Southwestern Refining Co. Inc.	
Corpus Christi	104,000
Texaco Refining & Marketing Inc.	
Port Arthur/Port Neches	250,000
Texas City Refining Inc.	
Texas City	119,600
Trifinery	
Corpus Christi	0
	27,000*
Unocal Corp.	
Nederland	120,000
Valero Refining Co.	
Corpus Christi	19,000
Total	3,902,900
	236,100*

UTAH

Company	b/d
Amoco Oil Co.	
Salt Lake City	40,000
Big West Oil Co.	
North Salt Lake	24,000
Chevron U.S.A. Inc.	
Salt Lake City	45,000
Crysen Refining Inc.	
Woods Cross	12,500
Pennzoil Products Co.	
(Formerly Seagull Refining Co.)	
Roosevelt	8,000
Phillips 66 Co.	
Woods Cross	25,000
Total	154,500

VIRGINIA

Company	b/d
Amoco Oil Co.	
Yorktown	51,000
Primary Oil & Energy Corp.	
Chester	2,400
Total	53,400

WASHINGTON

Company	b/d
Arco Petroleum Products Co.	
Ferndale	162,000
Chevron U.S.A. Inc.	
Richmond Beach	0
Mobil Oil Corp.	
Ferndale	77,000
Shell Oil Co.	
Anacortes	82,000
Sound Refining Inc.	
Tacoma	11,900
Texaco Refining & Marketing Inc.	
Anacortes	87,000
U.S. Oil & Refining Co.	
Tacoma	32,000
Total	451,900

WEST VIRGINIA

Company	b/d
Mid Atlantic Fuels Inc.	
(Formerly Quaker State Oil Refining Corp.)	
St. Mary's	4,658
Quaker State Oil Refining Corp.	
Newell	12,150
Total	16,808

WISCONSIN

Company	b/d
Murphy Oil U.S.A. Inc.	
Superior	32,000
Total	32,000

WYOMING

Company	b/d
Amoco Oil Co.	
Casper	40,000
Frontier Refining Co.	
Cheyenne	33,500
Little America Refining Co.	
Evansville	24,500
Mountaineer Refining Co. Inc.	
La Barge	0
	350*
Sinclair Oil Corp.	
Sinclair	54,000
Wyoming Refining Co.	
Newcastle	12,555
Total	164,555
	350*

GUAM

Company	b/d
Guam Oil & Refining Co. Inc.	
Agana	0
	43,900*
Total	0
	43,900*

PUERTO RICO

Company	b/d
Carribean Gulf Refining Corp.	
(Formerly Chevron U.S.A. Inc.)	
San Juan	36,000
Phillips Puerto Rico Core Inc.	
Guayama	0
Sun Co. Inc.	
Yabucoa	85,000
Total	121,000

VIRGIN ISLANDS

Company	b/d
Amerada Hess Corp.	
St. Croix	470,000
	75,000*
Total	470,000
	75,000*

E=Estimated.

Source: Petroleum Supply Annual, 1987, Energy Information Administration.

Lubrication Oil and Wax Capacities of U.S. Refineries

(All capacities in 000 b/d) as of Jan. 1, 1989

			Finished Lube Capacity					Wax Capacity	
Company	Location	Crude Capacity	A	B	C	D	Total	E	F
Amoco Oil Co.	Caspar, Wyo.	40.0	1.5				1.5		0.3
Amoco Oil Co.	Whiting, Ind.	350.0	6.2				6.2	0.6	
Ashland Oil, Inc.	Catlettsburg, Ky.	205.0	6.8				6.8		2.0
BP America	Lima, Ohio	178.0	2.4				2.4		0.6
Calumet Refining Co.	Burnham, Ill.					0.6	0.6		
Calumet Refining Co.	Princeton, La.	4.4				3.2	3.2		
Chevron U.S.A. Inc.	Port Arthur, Tex.	329.0	6.1	0.6	2.0	0.1	9.7		0.3
Chevron U.S.A. Inc.	Richmond, Calif.	270.0			2.3		10.8	1.2	1.0
Cit-Con Oil Corp.	Lake Charles, La.		9.1				9.1	1.2	0.5
Conoco Inc.	Ponca City, Okla.	134.0	2.3				2.3	0.3	
Diamond Shamrock	Three Rivers, Tex.	45.0					1.4		
Ergon, Inc. (Lion Oil Co. Affiliate)	El Dorado, Arkansas	50.0					1.0		
Ergon Refining, Inc.	Vicksburg, Mississippi	17.0					3.0		
Exxon Co., U.S.A.	Baton Rouge, La.	455.0	16.0	0.5			16.5	1.5	
Exxon Co., U.S.A.	Baytown, Tex.	494.0	18.0		9.0		31.2		1.8
Farmland Industries, Inc.	Coffeyville, Kans.	56.5							
Lyondell Petrochemical Co.	Houston, Tex.	260.0					7.0		0.4
Mid-Atlantic Fuels Supply	St. Mary's West Virginia	4.9							
Mobil Oil Corp.	Beaumont, Tex.	275.0	8.9				8.9	1.6	0.3
Mobil Oil Corp.	Paulsboro, N.J.	100.0	7.5				7.5		
Moore & Munger Marketing and Refining, Inc.	Smackover, Arkansas	7.0					4.0		
Pennzoil Co.	Rouseville, Pa.	15.7					4.4	0.6	0.4
Pennzoil Co./Atlas Processing Co.	Shreveport, La.	46.2	3.1				7.8	1.0	
Petrolite Corp.	Barnsdall, Okla.							0.4	
Petrolite Corp., Bareco Div.	Kilgore, Tex.	1.0							0.3
Quaker State Oil Ref. Corp.	Emlenton, Pa.							0.7	
Quaker State Oil Ref. Corp.	Farmers Valley, Pa.	6.5	1.7				1.7	0.4	0.5
Quaker State Oil Ref. Corp.	Newell, W.V.	10.5					3.6		0.5
San Joaquin Refining Co., Inc.	Bakersfield, Calfinornia	21.0			2.4	0.5	2.9		
Shell Oil Co.	Deer Park, Tex.	215.9	4.6				9.6	1.2	
Shell Oil Co.	Martinez, Calif.	140.1			3.8		3.8		
Shell Oil Co.	Wood River, Ill.	274.0	5.0				5.0		
Star Enterprises (Formerly Texaco U.S.A.)	Port Arthur, Texas	250.0	15.7		1.0		16.7		1.8
Sun Company, Inc.	Marcus Hook, Pa.	170.0				4.0	10.0		
Sun Company, Inc.	Tulsa, Okla.	85.0	7.5				7.5	0.8	
Sun Company, Inc.	Yabucoa, Puerto Rico	85.0					8.8		2.1
Unocal	Nederland, Tex.	74.2	3.1				3.1	0.1	0.3
Unocal	Rodeo, Calif.	77.0	4.6				4.6	0.7	1.2
Witco Chemical Corp.	Bradford, Pa.	10.0	1.6	0.9			2.5	0.2	
Witco Chemical Corp.	Oildale, Calif.	11.0			2.7	1.5	5.1		
	TOTAL:	**4766.9**	**131.7**	**2.0**	**21.2**	**6.7**	**230.2**	**12.3**	**15.2**

Canadian Refineries

Esso Petroleum Canada	Samia, Ontario	126.0	4.6		0.7		5.3	0.5	1.8
Esso Petroleum Canada	Strathcona, Alberta	157.0					2.8		0.7
International Waxes, Ltd.	Agincourt, Ontario						1.0		
Petro-Canada Products	Clarkson, Ontario	41.5					4.9		1.0
Shell Canada, Ltd.	Montreal East, Quebec	31.0	3.4				3.4		0.9
	TOTAL:	**355.5**	**8.0**		**0.7**		**16.4**	**0.5**	**4.4**

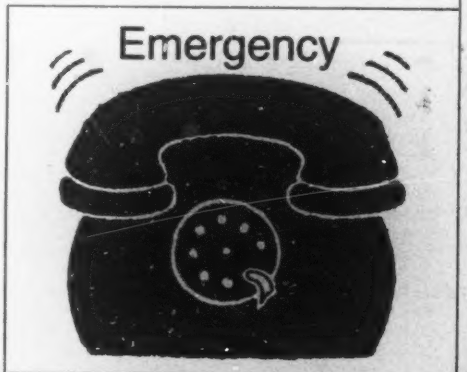
Definitions: A-Solvent extracted paraffinic lubes; B-Unextracted paraffinic lubes; C-Solvent extracted naphthanic lubes; D-Unextracted unhydrotreated naphthanic lubes; E-Fully refinshed crude scale and microcrystalline waxes; F-Semi-finished, slack waxes and petrolatums.
Source: National Petroleum Refiners Assn., Lubricationg Oil and Wax Capacities, 1987.

If there's a pain in your chest, be a pain in the neck.

Complain to a doctor.

Chest pain could be a sign of heart disease. The sooner you see your doctor, the better your chances for life.

American Heart Association
WERE FIGHTING FOR YOUR LIFE



U.S. Refineries and Capacities by Companies

(in descending order as of Jan. 1, 1988)

Important note: This listing includes capacity that is operational and capacity that is idle or shut down. In the latter case, this capacity can be restored to normal within 90 days. The Energy Information Administration says there were 213 operable refineries on Jan. 1, 1988, compared with a total of 219 the preceding year. The crude distillation capacity was 15.9-million b/d, compared with the year ago figure of 15.6-million b/d. For earlier data, see 1988 NPN Factbook.

Companies with a capacity of more than 100,000-b/d. Number of companies: 32; Total capacity: 13,870,043-b/d.

Company	b/d
Chevron U.S.A. Inc.	
Port Arthur, Texas	406,900
El Segundo, Calif.	405,000
Richmond, Calif.	350,000
Pascagoula, Miss.	295,000
Philadelphia, Pa.	174,100
Perth Amboy, N.J.	80,000
El Paso, Texas	76,000
Honolulu, Hawaii	48,000
Salt Lake City, Utah	45,000
Kenai, Alaska	22,000
Total	**1,902,000**
Exxon Co. U.S.A.	
Baytown, Texas	493,000
Baton Rouge, La.	455,000
Benicia, Calif.	126,000
Linden, N.J.	120,000
Billings, Mont.	42,000
Total	**1,236,000**
Shell Oil Co.	
Wood River, Ill.	274,000
Norco, La.	215,000
Deer Park, Texas	214,000
Martinez, Calif.	140,100
Carson, Calif.	112,000
Anacortes, Wash.	82,000
Odessa, Texas	28,600
Total	**1,065,700**
Amoco Oil Co.	
Texas City, Texas	400,000
Whiting, Ind.	350,000
Mandan, N.D.	58,000
Yorktown, Va.	51,000
Salt Lake City, Utah	40,000
Casper, Wyo.	40,000
Savannah, Ga.	28,000
Total	**967,000**
Texaco Refining & Marketing Inc.	
Ports Arthur/Port Neches, Texas	250,000
Convent, La.	225,000
Delaware City, Del.	140,000
Anacortes, Wash.	87,000
El Dorado, Kan.	81,500
Wilmington, Calif.	57,000
Bakersfield, Calif.	41,000
Total	**881,500**
Mobil Oil Corp.	
Beaumont, Texas	275,000
Joliet, Ill.	180,000
Torrance, Calif.	123,000
Paulsboro, N.J.	100,000
Ferndale, Wash.	77,000
Total	**755,000**
Atlantic Richfield Co.	
Arco Petroleum Products Co.	
Carson, Calif.	214,000
Ferndale, Wash.	162,000
Lyondell Petrochemical Co.	
Houston, Texas	260,000
Arco Alaska Inc.	
Prudhoe Bay, Alaska	20,000
Anchorage, Alaska	12,000
Total	**668,000**
Standard Oil Co.	
Belle Chasse, La.	198,500
Lima, Ohio	171,000
Toledo, Ohio	126,100
BP Oil Corp.	
Marcus Hook, Pa.	172,000
Total	**667,600**
U.S. Steel Corp.	
Marathon Petroleum Co.	
Garyville, La.	255,000
Robinson, Ill.	195,000
Texas City, Texas	69,500
Detroit, Mich.	68,500
Total	**588,000**
Unocal Corp.	
Lemont, Ill.	151,000
Nederland, Texas	120,000
Wilmington, Calif.	108,000
Rodeo, Calif.	77,000
Arroyo Grande, Calif.	41,000
Total	**497,000**
E I Du Pont De Nemours & Co.	
Conoco Inc.	
Westlake, La.	156,500
Ponca City, Okla.	134,000
Billings, Mont.	48,500
Commerce City, Colo.	43,000
Santa Maria, Calif.	9,500
Egan, La.	2,800
Total	**394,300**
Sun Co Inc.	
Marcus Hook, Pa.	165,000
Toledo, Ohio	125,000
Tulsa, Okla.	85,000
Total	**375,000**
Ashland Oil Inc.	
Catlettsburg, Ky.	213,400
St. Paul, Minn.	67,143
Canton, Ohio	66,000
Total	**346,543**
Coastal Corp.	
Coastal Eagle Point Oil Co.	
Westville, N.J.	90,000
Coastal Refining & Marketing Inc.	
Corpus Christi, Texas	90,000
Derby Refining Co.	
El Dorado, Kan.	30,400
Wichita, Kan.	28,800
Pacific Refining Co. Inc.	
Hercules, Calif.	55,000
Belcher Oil Co.	
Chickasaw, Ala.	26,600
Total	**320,800**
Citgo Petroleum Corp./Petroleos De Venezuela	
Citgo Petroleum Corp.	
Lake Charles, La.	320,000
Phillips 66 Co.	
Sweeny, Texas	175,000
Borger, Texas	105,000
Woods Cross, Utah	25,000
Total	**305,000**
Trans America Refining Co.	
Good Hope, La.	300,000
Koch Industries Inc.	
Koch Refining Co.	
St. Paul, Minn.	155,000
Corpus Christi, Texas	125,000
Total	**280,000**
Total Petroleum Inc.	
Ardmore, Okla.	62,000
Arkansas City, Kan.	53,600
Alma, Mich.	42,000
Colorado Refining Co.[1]	
Commerce City, Colo.	33,500
Total	**191,100**
Kerr-McGee Corp.	
Southwestern Refining Co. Inc.	
Corpus Christi, Texas	104,000
Kerr-McGee Refining Corp.	
Wynnewood, Okla.	43,000
Dubach, La.	10,000
Cotton Valley, La.	7,800
Total	**164,800**
Solomon Inc.	
Hill Petroleum Co.	
Houston, Texas	65,000
Krotz Springs, La.	56,000
St. Rose, La.	34,700
Total	**155,700**
Union Pacific Corp./Petroleos De Venezuela	
Champlin Refining Co.	
Corpus Christi, Texas	155,200
Mapco Petroleum Inc.	
North Pole, Alaska	90,000
Memphis, Tenn.	60,000
Total	**150,000**

Company	b/d
Diamond Shamrock Refining & Marketing Co.	
Sunray, Texas	100,000
Three Rivers, Texas	45,000
Total	145,000
Fina Oil & Chemical Co.	
Port Arthur, Texas 90,000	
Big Springs, Texas 55,000	
Total	145,000
Tenneco Oil Co.	
Chalmette, La.	145,000
Apex Oil Co.	
Clark Oil & Refining Corp.	
Blue Island, Ill.	64,600
Hartford, Ill.	63,600
Total	128,200
Tosco Corp.	
Martinez, Calif.	126,000
Sinclair Oil Corp.	
Sinclair, Wyo.	54,000
Tulsa, Okla.	47,000
Little America Refining Co.	
Evansville, Wyo.	24,500
Total	125,500
Atlantic Refining & Marketing Corp.	
Philadelphia, Pa.	125,000
Murphy Oil U.S.A. Inc.	
Meraux, La.	92,500
Superior, Wis.	32,000
Total	124,500
Agway Petroleum Corp.	
Texas City Refining Inc.	
Texas City, Texas	119,600

Companies with capacity of 30,001 to 100,000-b/d. Number of companies: 26; Total capacity: 1,372,705-b/d.

Company	b/d
Crown Central Petroleum Corp.	
Pasadena, Texas	100,000
Farmland Industries Inc.	
Coffeyville, Kan.	56,500
Phillipsburg, Kan.	26,400
Total	82,900
LL&E Petroleum Marketing	
Saraland, Ala.	80,000
National Cooperative Refinery Assn.	
McPherson, Kan.	75,600
Tesoro Petroleum Corp.	
Kenai, Alaska	72,000
Pennzoil Products Co.	
Shreveport, La.	46,200
Rouseville, Pa.	15,700
Roosevelt, Utah[2]	8,000
Total	69,900
Coral Petroleum Co.	
United Refining Co.	
Warren, Pa.	60,000
Vulcan Refining Co.	
Cordova, Ala.	9,500
Total	69,500
Pacific Resources Inc.	
Hawaiian Independent Refinery Inc.	
Ewa Beach, Hawaii	67,900
Union Pacific Resources Co.[3]	
Wilmington, Calif.	65,000
Lion Oil Co.	
El Dorado, Ark.	48,000
Paramount Petroleum Corp.	
Paramount, Calif.	46,500
Placid Refining Co.	
Port Allen, La.	46,000
Texas Eastern Corp.	
La Gloria Oil & Gas Co.	
Tyler, Texas	46,000
Seaview Petroleum Inc.	
Paulsboro, N.J.	44,400
Rock Island Refining Corp.	
Indianapolis, Ind.	43,000
Pride Refining Inc.	
Abilene, Texas	42,750
Thrifty Oil Co.	
Golden West Refining Co.	
Santa Fe Springs, Calif.	42,000
Cirillo Brothers Oil Co.	
Cibro Petroleum Products Inc.	
Albany, New York	41,850
Triad Terminal Corp.	
Edgington Oil Co. Inc.	
Long Beach, Calif.	41,600
Cenex	
Laurel, Mont.	41,450
Holly Corp.	
Navajo Refining Co.	
Artesia, N.M.	34,700
Montana Refining Co.	
Great Falls, Mont.	6,300
Total	41,000
Sargent Holdings Ltd.	
Powerine Oil Co.	
Santa Fe Springs, Calif.	35,000
Frontier Refining Co.	
Cheyenne, Wyo.	33,500
Hunt Oil Co.	
Tuscaloosa, Ala.	33,500
Time Oil Co.	
U.S. Oil & Refining Co.	
Tacoma, Wash.	32,000
Young Refining Corp.	
Douglasville, Ga.	5,655
Seminole Refining Corp.	
St. Marks, Fla.	17,000
Laketon Refining Corp.	
Laketon, Ind.	8,700
Total	31,355

Companies with capacity 10,001 to 30,000-b/d. Number of companies: 26; Total capacity: 522,805-b/d.

Company	b/d
Amerada Hess Corp.	
Purvis, Miss.	30,000
Flying J Petroleum Inc.	
Cutbank, Mont.	5,600
Big West Oil Co.	
North Salt Lake, Utah	24,000
Total	29,600
Fletcher Oil & Refining Co.	
Carson, Calif.	29,500
GAMXX Energy Inc.[4]	
Theodore, Ala.	27,000
Trifinery	
Corpus Christi, Texas	27,000
Crysen Corp.	
Crysen Refining Inc.	
Woods Cross, Utah	12,500
Sound Refining Inc.	
Tacoma, Wash.	11,900
Total	24,400
San Joaquin Refining Co. Inc.	
Bakersfield, Calif.	24,300
Pauley Petroleum Inc.	
Newhall Refining Co. Inc.	
Newhall, Calif.	22,500
El Paso Refining Co. Ltd.	
El Paso, Texas	21,600
Kern Oil & Refining Co.	
Bakersfield, Calif.	21,400
Indiana Farm Bureau Cooperative Assn.	
Mount Vernon, Ind.	21,200
Leal Petroleum Corp.	
Nixon, Texas	20,900
Ergon Inc.	
Vicksburg, Miss.	20,600
E-Z Serv Inc.	
Amber Refining Inc.	
Fort Worth, Texas	19,700
Valero Refining Co.	
Corpus Christi, Texas	19,000
Quaker State Oil Refining Corp.	
Newell, W.Va.	12,150
Smethport, Pa.	6,700
Total	18,850
Giant Refining Co.	
Gallup, N.M.	18,000
Texas NAPCO Inc.	
St. James, La.	17,000
Gary Energy Corp.	
Bloomfield Refining Co.	
Bloomfield, N.M.	16,800
VGS Corp.	
Southland Oil Co.	
Sandersville, Miss.	11,000
Lumberton, Miss.	5,800
Total	16,800
Huntway Refining Co.	
Benicia, Calif.	8,600
Wilmington, Calif.	5,500
Total	14,100

Company	b/d
MacMillan Petroleum Co. Signall Hill, Calif.	14,000
Calcasieu Refining Co. Lake Charles, La.	13,500
Wyoming Refining Co. Newcastle, Wyo.	12,555
World Oil Co. **Sunland Refining Corp.** Bakersfield, Calif.	12,000
Barrett Refining Corp. Thomas, Okla.	10,500

Companies with capacity 10,000-b/d or less. Number of companies: 29; Total capacity: 149,865-b/d.

Company	b/d
City Gas & Transmission Corp. Wilmington, N.C.	10,000
Mitchell Energy & Development Corp. **Liquid Energy Corp.** Bridgeport, Texas	10,000
Gibson Oil & Refining Co. Inc. Bakersfield, Calif.	9,600
Witco Corp. Bradford, Pa.	8,500
Lunday Thagard Co. South Gate, Calif.	8,100
Anchor Gasoline Corp. **Canal Refining Co.** Church Pont, La.	8,000

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Company	b/d
Claiborne Gasoline Co. Lisbon, La.	7,500
Moore & Munger Marketing & Refining Inc. **Cross Oil & Refining Co. of Arkansas** Smackover, Ark.	6,700
Petro Star North Pole, Alaska	6,700
Thriftway Co. Bloomfield, N.M.	6,100
Petro Source Resources Inc.[5] Vicksburg, Miss.	6,000
Somerset Refinery Inc. Somerset, Ky.	5,500
OGC Corp.[6] Egan, La.	5,000
West Coast Oil Co. Oildale, Calif.	5,000
Donna Refinery Partners Ltd.[7] Donna, Texas	4,750
Mid Atlantic Fuels Inc.[8] St. Mary's, W.Va.	4,658
Howell Hydrocarbons Corp. San Antonio, Texas	4,500
Nevada Refining Co. Tonopah, Nev.	4,500
Calumet Refining Co. Princeton, La.	4,207
Oxnard Refinery Oxnard, Calif.	4,000
Warrior Asphalt Refining Corp. Holt, Ala.	4,000
Martin Gas Sales Inc. **Berry Petroleum Co.** Stephens, Ark.	3,700
Crystal Refining Co. Carson City, Mich.	3,000
GNC Energy Corp. Greensboro, N.C.	3,000
Primary Oil & Energy Corp. Chester, Va.	2,400
Kentucky Oil & Refining Co.	
Troy, Ind.	1,000
Betsy Lane, Ky.	600
Total	**1,600**
Motor Oils Refining Co. McCook, Ill.	1,500
Petrolite Corp. Kilgore, Texas	1,000
Mountaineer Refining Co. Inc. La Barge, Wyo.	350

Footnotes:

[1] Formerly Asamera Oil (US) Inc.
[2] Formerly Seagull Refining Co.
[3] Formerly Champlin Petroleum Co.
[4] Formerly Marion Corp.
[5] Formerly Vicksburg Refining Inc.
[6] Formerly Louisiana Oil Refg. Co. of Egan
[7] Formerly Listo Petroleum Co.
[8] Formerly Quaker State Oil Refining Corp.

Changes in U.S. Refinery Capacity in 1987

On Jan. 1, 1988, the United States had a total of 213 operable refineries. There were nine shutdowns in 1987 and four refineries were reactivated. No new refineries were activated during 1987. Opearable capacity was pegged at 15.9-million b/d, up slightly from 15.6-million b/d, the year- earlier level. The increase substantiated indications that large losses of previous years have been reversed. Closings and reactivations resulted in a net gain in operable crude capacity of 271,250-b/d and upgrading within operating refineries lent another 78,655-b/d.

Refinery Shutdowns in 1987

Refinery	b/cd Crude Location	b/sd Downstream Distillation Capacity	Years In Charge Capacity	Operation
Beacon Oil Co.	Hanford, Calif.	17,300	11,380	27
Clark Oil & Refining Corp.	Mt. Airy, La.	0	27,000	39
Flying J. Petroleum, Inc.	Williston, N.D.	4,600	5,450	32
Lakeside Refining Co.	Kalamazoo, Mich.	5,600	0	39
MacMillan Petroleum Co.	Norphlet, Ark.	5,800	2,700	39
Sabre Refining Inc.	Bakersfield, Calif.	10,000	0	16
Silver Eagle Oil Co.	La Barge, Wyo.	3,000	0	13
Virginia Oil & Refining Co., Inc.	Jonesville, Va.	1,000	0	2
Western Oil & Refining	Long Beach, Calif.	19,200	0	11

Reactivated Refineries in 1987

Refinery	b/cd Crude Location	b/sd Downstream Distillation Capacity	Charge Capacity
Donna Refinery Partners, Ltd.	Donna, Texas	4,750	0
GAMXX Energy Inc.	Theodore, Ala.	27,000	10,000
Petro Source Resources, Inc.	Vicksburg, Miss.	6,000	7,900
Trans America Refining Co.	Good Hope, La.	300,000	520,000

Reclassified Refinery in 1987

Refinery	b/cd Crude Location	b/sd Downstream Distillation Capacity	Charge Capacity
Paramount Petroleum Corp.	Bakersfield, Calif.	20,500	34,800

Refinery Sales in 1987

Former Owner	Location	b/cd Crude Capacity	New Owner
Asamera Oil (US) Inc.			
Colorado Refining Co.	Commerce City, Colo.	33,500	Total Petroleum North America, Ltd.
Champlin Petroleum Co.	Corpus Christi, Texas	155,200	Union Pacific Corp. (50%), Petroleos De Venezuela (50%)
Chevron			
Caribbean Gulf Refining Corp.	San Juan, Puerto Rico	36,000	First Oil International Ltd.
Listo Petroleum Co.	Donna, Texas	4,750	Donna Refinery Partners, Ltd.
Louisiana Oil & Refining Co. of Egan	Egan, La.	5,000	OGC Corp.
Marion Corp.	Theodore, Ala.	27,000	GAMXX Energy Inc.
Paramount Petroleum Corp.	Bakersfield, Calif.	20,500	Texaco Refining & Marketing
Quaker State Oil Refining Corp.	St. Mary's, W.Va.	4,658	Mid-Atlantic Fuels
Vicksburg Refining Inc.	Vicksburg, Miss.	6,000	Petro Source Resources Inc.

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b/cd = bbl. per calendar day; b/sd = bbl. per stream day

Source: Energy Information Administration, Petroleum Supply Annual 1987, published in May 1988.

Shell and Working Storage Capacities—1986

Shell Capacity (Add 000 bbl.) (a)

		Gasoline			Fuel Oil				
	Crude Oil	Finished Leaded	Finished Unleaded	Blending Components	Middle Distillates	Residual Fuel Oil	Asphalt and Road Oil	Total Products(b)	Total Crude Oil and Products
PAD District 1 Total	27,665	3,696	14,511	12,255	22,491	13,452	5,277	104,029	131,694
New Jersey	9,471	1,744	6,724	6,846	12,087	6,818	1,954	48,730	58,201
Pennsylvania	11,676	1,016	3,619	2,999	4,362	2,665	1,265	28,160	39,836
Other States(c)	6,518	936	4,168	2,410	6,042	3,969	2,058	27,139	33,657
PAD District 2 Total	26,987	11,454	18,095	18,002	26,786	6,893	12,665	148,427	175,414
Illinois	7,625	2,911	4,669	5,358	7,139	1,784	2,060	40,414	48,039
Indiana	2,940	908	2,303	3,140	3,561	1,600	2,382	19,826	22,766
Kansas	3,164	2,258	2,972	1,632	3,516	595	955	20,541	23,705
Kentucky	1,222	263	549	398	617	405	753	5,907	7,129
Ohio	2,637	639	1,872	2,573	1,923	422	906	12,886	15,523
Oklahoma	4,384	2,357	2,554	2,688	4,131	469	1,657	24,612	28,996
Other States(c)	5,015	2,118	3,176	2,213	5,899	1,618	3,952	24,241	29,256
PAD District 3 Total	107,322	12,477	28,306	36,972	43,841	23,657	7,466	318,747	426,069
Alabama	2,549	304	408	762	871	945	662	4,514	7,063
Arkansas	1,646	116	166	148	704	97	751	2,182	3,828
Louisiana	28,108	2,526	7,519	11,614	16,374	8,176	1,706	89,072	117,180
Mississippi	4,394	689	1,968	1,775	2,428	665	1,118	10,612	15,006
New Mexico	973	238	230	790	580	419	483	4,314	5,287
Texas	69,652	8,604	18,015	21,883	22,884	13,355	2,746	208,053	277,705
PAD District 4 Total	4,880	2,893	2,168	4,828	4,670	1,279	5,010	27,268	32,148
Colorado	883	353	401	609	612	237	593	3,792	4,675
Montana	1,444	788	561	1,650	1,300	235	1,810	8,402	9,846
Utah	1,462	590	485	1,151	1,126	283	442	5,604	7,066
Wyoming	1,091	1,162	721	1,418	1,632	524	2,165	9,470	10,561
PAD District 5 Total	48,201	5,030	11,831	19,016	12,934	16,979	4,007	122,586	170,787
Alaska	1,103	86	251	291	847	1,173	69	3,648	4,751
California	34,643	3,585	9,857	15,617	9,152	12,932	2,988	98,788	133,431
Washington	8,318	1,304	1,555	2,417	2,342	1,436	351	15,119	23,437
Other States(c)	4,137	55	168	691	593	1,438	599	5,031	9,168
U.S. Total	215,055	35,550	74,911	91,073	110,722	62,260	34,425	721,057	936,112(d)

Working Storage Capacity (Add 000 bbl.) (a)

		Gasoline			Fuel Oil				
	Crude Oil	Finished Leaded	Finished Unleaded	Blending Components	Middle Distillates	Residual Fuel Oil	Asphalt and Road Oil	Total Products(b)	Total Crude Oil and Products
PAD District 1 Total	23,664	3,320	13,069	10,444	20,660	12,551	4,736	93,392	117,056
New Jersey	7,837	1,555	5,986	5,601	11,091	6,361	1,691	43,323	51,160
Pennsylvania	10,284	917	3,188	2,669	3,948	2,392	1,102	25,401	35,685
Other States(c)	5,543	848	3,895	2,174	5,621	3,798	1,943	24,668	30,211
PAD District 2 Total	23,699	10,206	15,856	15,787	24,692	6,274	11,615	134,148	157,847
Illinois	6,431	2,374	3,903	4,563	6,515	1,592	1,932	35,841	42,272
Indiana	2,530	811	1,974	2,639	3,168	1,479	2,068	17,457	19,987
Kansas	2,902	2,153	2,673	1,424	3,312	541	865	19,049	21,951
Kentucky	1,164	251	523	376	587	383	717	5,696	6,860
Ohio	2,307	547	1,620	2,224	1,735	325	844	11,309	13,616
Oklahoma	3,838	2,123	2,336	2,558	3,814	433	1,480	22,433	26,271
Other States(c)	4,527	1,947	2,827	2,003	5,561	1,521	3,709	22,363	26,890
PAD District 3 Total	83,037	10,799	24,600	31,972	38,704	20,896	6,541	278,674	361,711
Alabama	2,218	267	365	702	753	809	521	3,896	6,114
Arkansas	1,487	104	149	138	652	86	679	1,989	3,476
Louisiana	23,413	2,132	6,291	9,422	13,916	7,272	1,407	76,299	99,712
Mississippi	3,925	617	1,788	1,670	2,259	613	962	9,681	13,606
New Mexico	867	201	183	721	488	350	473	3,790	4,657
Texas	51,127	7,478	15,824	19,319	20,636	11,766	2,499	183,019	234,146
PAD District 4 Total	4,334	2,595	1,932	4,353	4,378	1,189	4,722	24,996	29,330
Colorado	731	324	366	557	583	217	576	3,516	4,247
Montana	1,248	700	494	1,481	1,221	217	1,687	7,716	8,964
Utah	1,330	511	414	1,021	1,055	259	409	5,027	6,357
Wyoming	1,025	1,060	658	1,294	1,519	496	2,050	8,737	9,762
PAD District 5 Total	41,670	4,331	10,240	16,606	11,521	15,377	3,749	108,225	149,895
Alaska	1,037	81	237	277	806	1,124	66	3,471	4,508
California	29,497	3,008	8,467	13,559	8,016	11,566	2,774	86,614	116,111
Washington	7,330	1,192	1,381	2,122	2,143	1,318	339	13,400	20,730
Other States(c)	3,806	50	155	648	556	1,369	570	4,740	8,546
U.S. Total	176,404	31,251	65,697	79,162	99,955	56,287	31,363	639,435	815,839(d)

(a) Shell capacity is the design capacity of a tank; working capacity is the difference between the maximum safe fill capacity and tank bottoms; (b) Total products include ethane, isobutane, pentanes plus other hydrocarbons, hydrogen, alcohol, unfinished oils, finished aviation gasoline, special naphthas, coke, wax, still gas, petrochemical feedstocks, and miscellaneous products; (c) Other states include: PAD 1—Connecticut, Delaware, Florida, Georgia, Maryland, New York, North Carolina, Virginia and West Virginia; PAD 2—Minnesota, Missouri, North Dakota, Tennessee and Wisconsin; PAD 5—Hawaii, Nevada and Oregon; (d) Includes 30.5-million bbl. at shutdown refineries and 34.5-million bbl. at gasoline blending plants.

Source: Energy Information Administration, Petroleum Supply Annual 1987, published in May 1988.

U.S. REFINING CAPACITY 1977-1987

(in thousands of b/d)

/—OPERABLE REFINERIES—\

(As of Jan. 1 of each year)

Year	No. of Refs.	Chng. from Prec. Year	Operable Capacity	Chng. from Prec. Year
1988	213	-6	15,916	+350
1987	219	+3	15,566	+107
1986	216	-7	15,459	-200
1985	223	-24	15,659	-478
1984	247	-11	16,137	-722
1983	258	-43	16,859	-1,030
1982	301	-23	17,890	-731
1981	324	+5	18,621	+632
1980	319	+8	17,989	+547
1979	311	+9	17,441	+393
1978	302	+11	17,048	+650

Source: Energy Information Administration, Petroleum Supply Annual 1987, plus industry sources for supplemental data.

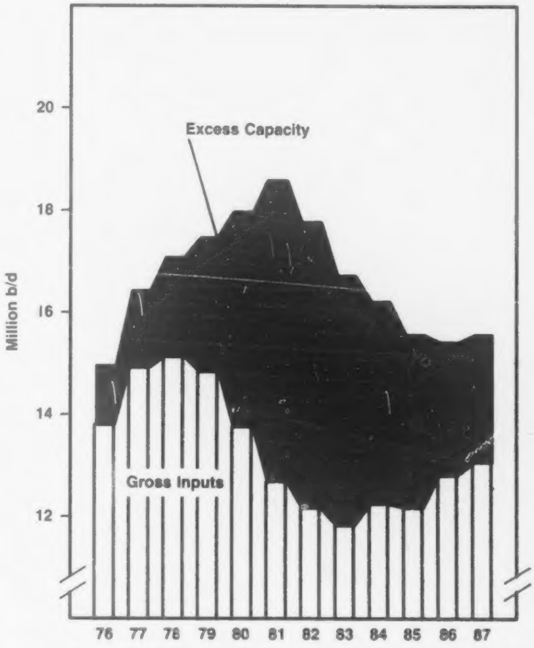
/—INPUTS AND UTILIZATION—\

(Avg. for calendar year)

Year	Gross Input	Percent Utilized	Percent Idle	Excess Volume
1987	13,003	83.1%	16.9%	2,690
1986	12,826	83.0	17.0	2,633
1985	12,165	77.6	22.6	3,494
1984	12,216	76.2	23.8	3,921
1983	11,947	71.7	28.3	4,912
1982	12,172	69.8	30.2	5,718
1981	12,751	68.5	31.5	5,870
1980	13,834	76.9	23.1	4,153
1979	14,955	85.7	14.3	2,486
1978	15,071	88.4	11.6	1,977

Source: See above footnote.

Gross Inputs and Excess Capacity



Source: For 1975 through 1986, Energy Information Administration, Annual Energy Review, 1986. For 1987, Petroleum Supply Annual, 1987.

Refinery Turnaround Continues in 1987

Following a five-year slump beginning in 1982 and continuing through 1986, the domestic refining industry appears to be on a solid road to recovery, according to the Energy Information Administration.

EIA's latest data indicates that the long downslide bottomed out in 1986, with the upturn continuing the following year. Whether this upward movement will continue remains to be seen. One thing is certain; recent increases in product demand has capacities at many U.S. plants stretched to the limits, meaning that the bulge in excess capacity of the last few years will undoubtedly be trimmed considerably when current year figures are compiled.

EIA reports that U.S. operable crude oil distillation capacity increased from 15.6-million b/d as of January 1, 1987 to 15.9-million b/d on the same date in 1988, an increase of over 300,000 b/d. The number of operable refineries, however, actually decreased by six during the same period, with nine plants shut down and four reactivated. The nine closed refineries were all small capacity units totaling only 66,500 b/d, while the four reactivated plants contribute an additional 337,750 b/d to the U.S. refinery pool, with a whopping 300,000 b/d coming from Trans America's Good Hope, La. facility which went back onstream in November 1987.

Upgrades of existing refineries added another 78,655 b/d to the capacity total, EIA says.

Refinery utilization rates are also on the upswing, quite dramatically from the low utilization rates of the early 1980s, according to EIA's data. This, of course, has a dampening effect on the industry's burdensome excess capacity of recent years. For 1987, the average U.S. utilization rate had climbed to 83.1%, a slight increase over 1986, but a big jump over the low rate of 68.5% recorded in 1981.

In terms of volume, the higher throughputs of 1987 reduced the excess capacity gap of 1981—an enormous 5.9-million b/d—to a more manageable (and profitable) 2.7-million b/d in 1987.

Refinery yields remained fairly stable in 1987, the EIA points out. Yields for motor gasoline averaged 46.4% compared with 44.5% in 1980 and 45.6% in 1986. This was slightly below the peak year of 1983 for gasoline when the yield was 47.4%. The distillate fuel oil yield in 1987 was 20.5%, compared to 21.2% in 1986. Residual, which dropped sharply in the 80's in terms of yields, moved down another notch in 1987 to 6.6%. Jet fuel on the other hand, which has supplanted residual fuel as one of the top three petroleum products put out by refineries, moved up to a 10.0% yield in 1987.

July 1989
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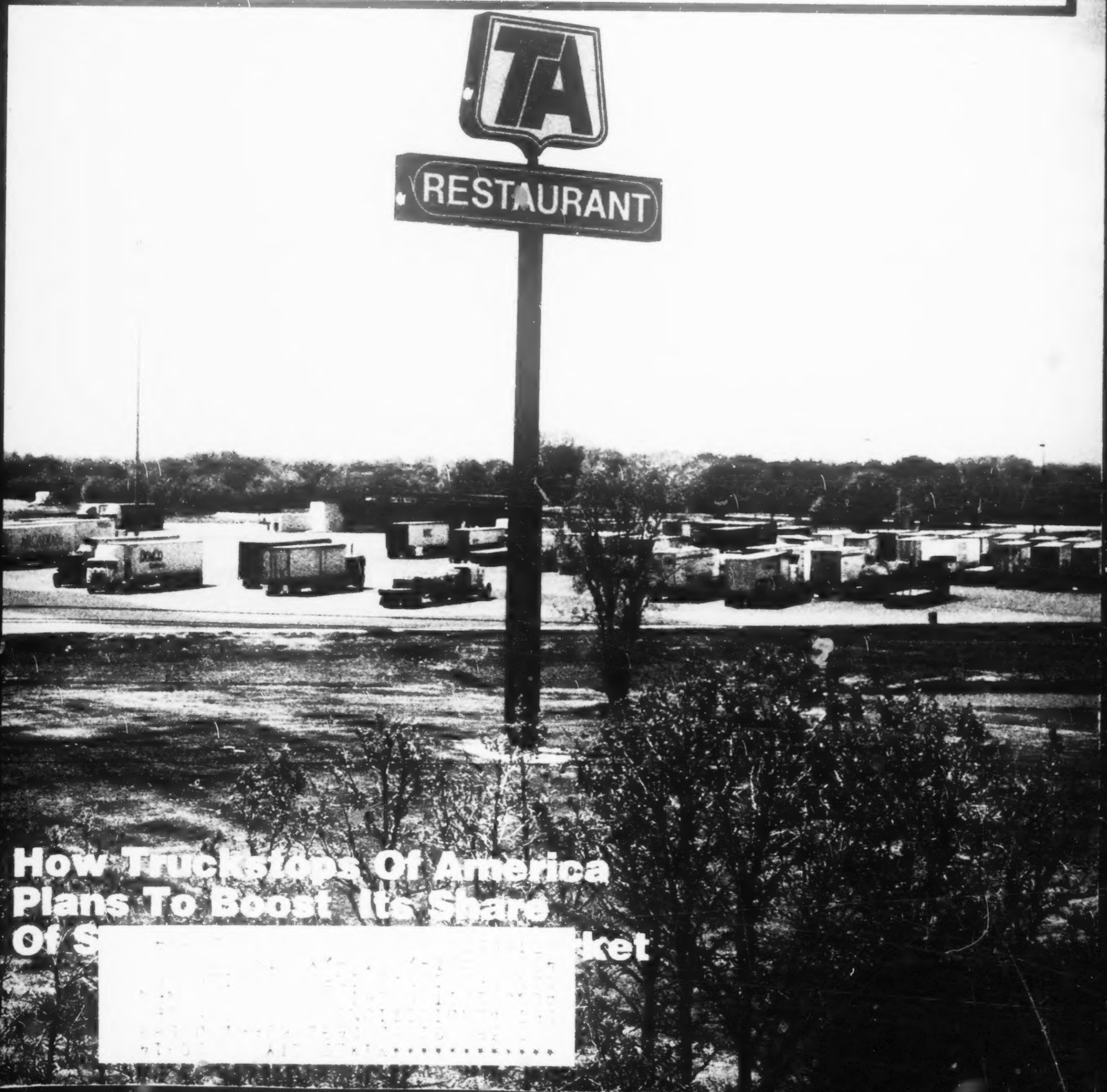
What's Ahead For Southland, Circle K
What Road Runner Sale Says To Marketers
Should Jobbers Buy Equipment Direct?

NPN



How Truckstops Of America Plans To Boost Its Share Of S ket

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Editor's Viewpoint

Attention continues to focus on still growing foreign investment in the United States. Most recently, the New York Times reported on this trend of "buying America on the cheap," although the strengthening U.S. dollar and resilience of the U.S. economy may for a time slow the momentum.

Though the danger of foreign investment is, I think, exaggerated, it is unsettling when your own industry becomes a target, [*NPN*—Dec. '88 p28]. According to the Energy Information Administration, the percentage of branded retail outlets supplied by foreign affiliated U.S. companies went from a little less than 20% in 1984 to more than 34% in 1987. The Texaco/Saudi and Unocal/Venezuela deals of the last year probably push the figure above 45%.

An interesting angle is how great an influence the sudden load of legislation and regulation dropped on marketers—tough new underground tank regs and insurance requirements, higher minimum wage, mandated health benefits, Stage II, etc., etc.—will have on how this foreign investment scenario in the U.S. oil industry plays out, particularly in the downstream end.

One possible indication is the recent sale of Truman Arnold's Road Runner chain of more than 100 outlets to Total Petroleum, a subsidiary of Total Petroleum North America Ltd., which is owned by the French company Total Compagnie Francais des Petroles, SA. Arnold no doubt had a number of good reasons to sell his highly successful operation, one of which was probably a very high price. But it is also very likely that another major consideration was the cumulative impact of all the regs and legislation now facing marketers. He estimates that it would cost about $60,000 per outlet just to meet UST regs.

Arnold was selling about 50-million gal./mo. of gasoline and diesel. In 1988, sales totaled $217-million and the company's rate of return on its roughly $45-million in assets was 20% or more. If an operator of this size, savvy and solid financial base decided it was time to bail out, what about jobbers in less enviable positions?

A lot of marketers are giving a lot of thought to whether they want to stay in this business. If and when they opt to sell, who buys? No doubt some purchasers will be financially sound jobbers dedicated to remaining in the industry and ready, in fact, to seize opportunity and invest in expanding. Domestic refiners will also be hunting for jobberships with good locations. But there are also foreign oil interests salivating to enter U.S. downstream operations, and others equally eager to extend their current holdings, who'll gladly pay a big price for a jobber's business as well as make the economic commitment to comply with new regs and legislation.

—*Frank Victoria*

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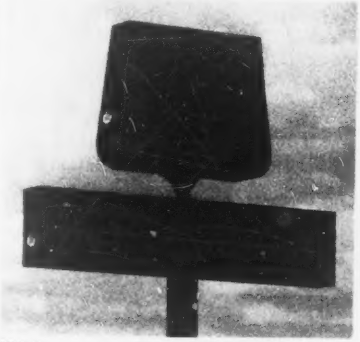

While many truckstop chains are promoting general public patronage or trimming down to no-frills fuel stops, Truckstops of America is keeping its marketing sights fixed on its primary trucker customer base.

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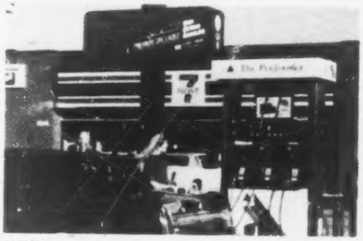

Will Getty buy Southland's 50% interest in Citgo? Who will be the suitors for Circle K, now that the company is officially on the block? And why are two of the top three C-store chains in trouble?

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Road Runner
SUPER
UNLEADED
REGULAR
89
83

Could the announcement that superjobber Truman Arnold plans to sell most of his Road Runner Stores to Total Petroleum be the first sign of a new round restructuring in the industry?

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• TRENDS

High Octanes: Are They Heading Into Trouble?

Premium-grade gasolines, which make more money for oil companies than any other mainline product, may have a comeuppance of their own pretty soon.

When and if it happens, how far it goes and how long it lasts hinges precariously on retail pump prices and product imports, both of which have risen sharply in recent times. If these upward contrails continue, high octanes may suddenly find themselves the focal point of inquiries and challenging criticism from conservationists, environmentalists and government regulators.

There's no question that high octanes and oil company sales promotion techniques are jointly occasioning considerable waste of valuable energy resources.

Some round numbers will quickly give a perspective to the problem and the potentials:

- Assume, for starters, that 1989 gasoline consumption will be around 116-billion gal.
- Automotive experts and others (including major company executives) say 80% of the cars on the road can be powered satisfactorily with regular grade gasoline—leaded or unleaded; that is, 87-89 octanes.
- Eighty percent of 116-billion gal. is 92.8-billion gal. This is the market volume for the regular and mid-grade gasolines that could be expected to take care of eight out of 10 cars. Presumably, the balance (20% or 23.2-billion gal.) would be all the premium grade needed for the rest of the auto population, principally higher compression engines and special manufactures.
- Most oil companies do not disclose the ratios between and among leaded regular, unleaded regular, mid-grade and unleaded premium. But unleaded premium is generally known to hold a 30% to 35% share of the gasoline market on the Atlantic Seaboard from Maine to Florida and a bit less through the rest of the country.
- Thirty percent of 116-billion gal. is 34.8-billion gal. This is the current market volume for the 90-octane and above that generally qualifies as a premium-grade gasoline. Subtracting 23.2-billion from 34.8-billion leaves a balance of 11.6-billion gal.

In other words, consumers are self-indulging themselves and their cars with 11.6-billion gal. of premium-grade gasoline, spending an extra $2-billion/yr. on an image and a product they really don't need.

Refiners say it takes more crude to manufacture higher octanes. It used to be that they could do it with a couple of dollops of tetraethyllead. Now they have to use more expensive technology and equipment or other alternatives such as alcohol, MTBE and so forth.

Here's the eye-popper: 11.6-billion gal. of gasoline equals 750,000-b/d of liquid, be it crude oil or product. That's about 10.5% of the 7-million b/d of gasoline now consumed on the highways. It's an inviting target for people bent on cutting oil consumption.

You can't blame the oil companies for pushing their top-of-the-line product. That's standard procedure in all manufacturing businesses. They're in business to make money for themselves and their shareholders. Period and end quote.

You can't blame the oil companies for consumer buying patterns either. Individuals buy either what they want or what they can afford or what the siren songs lure them into. Freedom of choice. That's the American way.

However, it's a problem of significance that will worsen if rising pump prices impinge on the economy and if imports—already past the 50% mark—twinge the national conscience about U.S. dependence on foreign oil.

Car manufacturers may be the source of some small relief in the future. But the pressure is going to be on the oil industry. One General Motors executive told an American Petroleum Institute marketing meeting several months ago that better additive packages might cut octane numbers by as many as eight.

Refiners and marketers should mark well the warning of an Environmental Protection Agency executive last winter: "EPA has concentrated on the automobile in the past. You can expect more emphasis on fuels in the 1990s. New fuels are inevitable."

—J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

APRIL	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$1.098	$1.047	$1.065	$1.221
Regions:				
Northeast	1.073	0.975	1.023	1.214
North Central	1.116	1.075	1.084	1.255
South	1.073	1.021	1.034	1.182
West	1.140	1.081	1.126	1.280

Source: U.S. Dept. of Labor, Bureau of Labor Statistics.

STOCKS (add 000 bbl.)

	6/2/89	6/3/88
Gasoline (all types)	219,818	224,048
Gasoline (unleaded) *	153,984	143,355
Jet Kerosine	39,123	38,336
Distillates	98,850	102,531
Residual	39,843	42,548

** Included in gasoline total.*

Source: American Petroleum Institute.

NPN

NATIONAL PETROLEUM NEWS JULY 1989

New Energy Forecast: Higher Crude, RVP Costs Boosting Gasoline Prices

Although their short-term energy forecasts have been generally on the conservative side, federal forecasters now agree that 99¢ gasoline is pretty well a thing of the past.

They see $1.09/gal. in July, August and September and $1.06/gal. for the October, November and December period. This is the composite for all grades and services and is weighted by actual consumption variations.

Not since 1985 has this average price hit and stayed above the buck-a-gallon level for more than a month or two. It still has a long way to go to reach the $1.28-$1.30/gal. levels which were par for the course in 1981 and 1982, however.

At that, this summer's gasoline prices—at least on the federal charts—are 9¢/gal. above those of last summer. Actual street prices were above $1.10/gal. in May in many places and they'll probably hit $1.15 to $1.18/gal. in July and August, some industry observers say.

Demand will be up this summer and next, but not significantly, the current Short-Term Energy Forecast says.

Total demand for all products also will be up but the projected rate of increase is so small it may not be noticeable.

Of interest is the fact that the ratio pace between leaded and unleaded gasoline sales appears to be slowing down a bit. It's expected to average 85% for 1989 and 87% for 1990, compared with 82% in 1988 and 76% in 1987. In other words, up 6% in 1988, 5% in 1989 and only 2% in 1990. This is because the older car population is getting down to a core point, where future declines will be much slower.

The new federal forecast, dated April but issued in mid-May, is based on $17/bbl. crude oil in 1989 and 1990. However, imported crude oil has edged up to the $20/bbl. level since the first of the year and has been nervously reacting to negative production reports at home and abroad.

Whether the price goes higher depends not only on a June meeting of the Organization of Petroleum Exporting Countries but also on how faithful the members are to their production quotas.

A recent report in The Wall Street Journal stated that OPEC members were pumping 1.5-million b/d over their 18-million-b/d quotas in May. They are expected to raise their quotas at this month's meeting but long-term this can only lead to global surpluses again. If that happens, crude prices will probably sag to the $17-$18/bbl. level.

There has been a small furor over the rise in gasoline prices in recent months. Suppliers blamed it on rising crude oil costs and higher wholesale costs which were not passed along until early spring—about the time of tbe Exxon spill in Alaska which initially "and erroneously" got the blame.

There was—and still is—considerable confusion over how much the federal government's new Reid Vapor Pressure level of 10-psi for the summer months is going to cost consumers. Some New England states implemented an even more drastic RVP of 9, creating both supply and cost-calculation problems on the East Coast.

The spiraling gasoline prices prompted a number of states and also some voices on Capitol Hill in Washington to call for investigations to determine whether the new pu[illegible] tails were justified.

The higher gasoline prices have increased the cash flow at most service stations but not the profits. Margins, industry sources said, haven't changed that much in recent months so no one is really hurting.

Here's what federal forecasters foresee for gasoline and distillates this year and next:

(Continued on next page)

Looking Ahead: Gasoline Prices Are Improving

	THIS YEAR					
	1Q	2Q	3Q	4Q	Full Year	% Chng. '89/'88
PRICES (¢/gal.) (a)						
Motor Gasoline (b)	$0.96	$1.05	$1.09	$1.06	$1.04	8.3%
No. 2 Diesel Fuel	.92	.92	.92	.95	.93	2.2
No. 2 Heating Oil						
Wholesale	.52	.52	.52	.57	.53	10.4
Retail	.85	.84	.81	.87	.84	3.7
Residual (c)	.38	.38	.38	.40	.39	14.7
DEMAND (million b/d)						
Motor Gasoline	7.09	7.57	7.59	7.39	7.41	1.4
Leaded	.98	1.18	1.14	1.06	1.09	(18.0)
Unleaded	6.11	6.39	6.46	6.33	6.32	5.5
% Unleaded	86%	84%	85%	86%	85%	2.0
Distillates	3.39	3.05	2.87	3.27	3.14	1.3
Residual	1.47	1.12	1.12	1.28	1.25	(6.0)
Total U.S. (d)	17.54	16.95	17.16	17.61	17.32	0.9
	NEXT YEAR					
PRICES (¢/gal.) (a)						'90/'89
Motor Gasoline (b)	1.00	1.02	1.08	1.07	1.04	0.0
No. 2 Diesel Fuel	.94	.92	.92	.95	.93	0.0
No. 2 Heating Oil						
Wholesale	.55	.51	.52	.57	.54	1.8
Retail	.89	.85	.83	.88	.87	3.6
Residual (c)	.41	.38	.39	.41	.40	2.6
DEMAND (million b/d)						
Motor Gasoline	7.12	7.65	7.70	7.51	7.50	1.2
Leaded	.98	1.01	.98	.91	.97	(11.0)
Unleaded	6.14	6.64	6.72	6.60	6.53	3.3
% Unleaded	86%	87%	86%	88%	87%	2.0
Distillates	3.56	3.07	2.90	3.31	3.21	2.2
Residual	1.36	1.07	1.07	1.25	1.18	(5.9)
Total U.S. (d)	17.63	17.05	17.30	17.82	17.45	0.8

(a) Includes federal and state taxes on all products except heating oils which are untaxed; (b) Average for all grades and services; (c) Average for all grades and sulfurs; (d) Includes all other oils.

Source: Energy Information Administration, Short-Term Energy Forecast, dated April and published May 1989.

(*Forecast* . . . continued from last page)

Gasoline: "Motor gasoline is expected to continue its six-year growth, at a pace similar to the 1.4% rate for 1988, through 1990. Increases in motor vehicle travel are expected to slacken as the economy slows down from the rapid growth exhibited in 1988.

"However, average vehicle efficiency (mpg), which has apparently been growing by between 1.5% to 2.0% over the last several years, is not expected to advance as quickly in 1989 and 1990, averaging under 1.5% during that period.

"Continued increases in demand may be expected to exacerbate some gasoline supply problems now facing refiners and to keep gasoline prices relatively high. Nevertheless, real (inflation-adjusted) fuel costs are expected to decline between 1989 and 1990."

Distillates: "After increasing by 4% in 1988, annual growth in distillate demand is projected to be less during the forecast period.

"With expected normal weather, slower gains in manufacturing, and slightly higher fuel prices, growth in distillate demand averages 1.3% and 2.2% in 1989 and 1990, respectively.

"Transportation demand for diesel fuel showed annual growth of over 3.0% during 1988. Slower industrial growth and higher diesel prices should cause growth rates to slow accordingly in 1989 and 1990."

Shell, Health Officials Clash On Gasoline Cleanup Rules

Oil companies, including jobbers and dealers, are a long way from agreeing with environmental agencies on how or whether to clean up gasoline contamination resulting from leaking underground storage tanks, but public agencies are often rigid about cleanup procedures and some are leaning hard on companies that don't see it their way.

Oil companies question under some circumstances whether any real harm is done if the gasoline is left untreated in the soil.

They also question whether contaminated soil has to be hauled off to special toxic dumps, at great expense, requiring special permits and other arrangements, at great expense.

In a recent Orange County, Calif., case, Shell finally bowed to pressure—a lot of pressure—and as part of the settlement agreed to do some costly research to clarify what the real danger is and what techniques can provide safe cleanup.

The Orange County district attorney had filed suit against Shell in state Superior Court on behalf of county health officials, alleging improper handling of soil during underground storage tank removal at 14 stations in Orange County and seeking $250,000 penalties.

It wasn't a question of Shell not removing leaking tanks. Shell removed the tanks at 14 locations and installed new fiberglass tanks, but county health officials said the company did not comply with county orders to check for underground water contamination or submit cleanup plans.

Shell disagreed with the county on the necessity to dispose of soil surrounding the old tanks, a company statement said.

In a consent decree, Shell agreed, without admitting liability, to pay nominal administrative costs of $40,000 to the county, and, more importantly, to pay for two research projects to be shared with the county.

Shell said it had completed remedial work at five of the 14 sites, leaving nine sites involved in the consent decree.

At an estimated cost of $1.1-million, the two research projects will attempt to assess the risk of gasoline vapor migration in the soil and the possible public health risks resulting from cleanup work itself, a Shell statement said. Shell also agreed to perform a two-site research project on soil vapor extraction.

The study could shed light on what should and should not be done when gasoline is found in the ground beneath a service station.

New Option Offered For UST Coverage

Marketers have a new alternative for obtaining the Environmental Protection Agency's mandatory $1-million worth of tank liability insurance: Environmental Risk Services, Inc., a consultant that will match a marketer's needs with the services of several insurers and reinsurers.

Based in Washington, D.C., the group counts Lloyd's of London among its list of affiliate insurance companies.

Not an insurance company themselves, Environmental Risk Services may call on one or a combination of insurers to meet a marketer's needs, says Thomas W. Egan, one of the two founders of the group.

Deductibles range from $5,000 to $1/2-million depending on how many tanks a client has, Egan says.

Likewise, premiums can range between $1,000 and $2,500 depending on the number of tanks, he says.

The group also has a set of criteria by which to judge whether or not a marketer is a good risk. Among these factors are tightness tests and monitoring systems, remoteness of system from ground water or a populated area, cathodic protection and inventory control.

IPAA Looks To White House To Mitigate 'Energy Dilemma'

The International Petroleum Assn. of America (IPAA) Economic Policy Committee used harrowing terms to size up the nations energy condition and leaned on the Bush administration for corrective action to an "urgent need."

At its mid-year meeting, IPAA said the country is hampered by a combination of upstream financial shortfalls, overreliance on foreign oil due to unexpected domestic demand and supply interruptions.

Statements culled from the IPAA report include: "Petroleum production in the Lower 48 states has fallen to its lowest level since 1950 and is continuing to decline at an alarming rate....economic activity has cause[d] petroleum consumption to exceed most expectations. Consequently, imports are the only solution...Severe capital shortages persist in the upstream sector."

IPAA said the solution is not a limited, quick fix energy program but an enduring, complete, forward-focusing strategy. "There is an urgent need for the new administration to develop a long-term, comprehensive national energy policy that will guide the country into the 21st Century."

At the same mid-year meeting, the IPAA Tax Committee said Bush's proposals for tax incentives designed to shackle the drop in exploration and production were "too narrow in scope."

The 60-year-old IPAA represents about 10,000 independent oil and natural gas explorers and producers in the 33 states where such activity occurs.

Pennsylvania Jobber Joins Wright Express

Altoona, Pa. jobber Sheetz has become the most recent independent marketer to enlist the electronic credit administrative services of Wright Express Corp.

Sheetz joins other independent clients of Wright such as Getty, Fina, Crown and Total/Vickers in an agreement that will bring the Portland, Maine-based Wright Express 170 additional electronic sites, now at more than 3,000.

New IPAA Outlook: Demand Strong, But Imports Could Exceed U.S. Crude Output

The new industry outlook for petroleum supply and demand, released in May by the Indepdendent Petroleum Assn. of America, sounds an ominous note with respect to U.S. energy security.

According to IPAA's latest forecast, annual petroleum imports are expected to exceed domestic crude oil production for the first time since 1977.

U.S. crude output is projected to decline for the fourth consecutive year, a drop of 4% to an average of only 7-million b/d, IPAA says.

With demand increasing to the highest level (17.5-million b/d) since 1979, however, total U.S. supply will rise 13.5% to an average of 8.1-million b/d. Domestic petroleum imports are forecast to reach 44% of total U.S. supply this year, up 4% from 1987.

"The United States is rapidly approaching over dependence on imported oil," IPAA concludes, noting the need for legislation to spur domestic production.

(Add 000 b/d)

			1989 Forecast			
DEMAND Domestic Products	1st Qtr	2nd Qtr	3rd Qtr (Add 000 b/d)	4th Qtr	1989 Average	1988-89 % Cng.
Motor Gasoline	7,044	7,593	7,567	7,391	7,400	1.2%
Aviation Fuels	1,552	1,474	1,506	1,542	1,518	3.1
Middle Distillates	3,566	2,990	2,920	3,450	3,230	0.9
Residual Fuel Oil	1,516	1,228	1,279	1,476	1,374	3.4
Other Products	3,855	3,769	4,083	4,054	3,942	2.3
Domestic Demand	17,533	17,054	17,355	17,913	17,464	1.7
Total Exports	843	787	764	796	797	(2.7)
TOTAL DEMAND	**18,376**	**17,841**	**18,119**	**18,709**	**18,261**	1.5

SUPPLY Domestic Production						
Crude Oil	7,856	7,731	7,823	7,792	7,800	(4.0)
Natural Gas Liquids	1,624	1,592	1,571	1,601	1,597	(1.4)
Total Production	**9,480**	**9,323**	**9,394**	**9,393**	**9,397**	(3.6)
Imports						
Motor Gasoline	436	526	550	475	497	12.7
Aviation Fuels	123	101	100	95	105	19.3
Middle Distillates	377	238	267	360	310	4.7
Residuel Fuel Oil	726	500	525	689	610	3.2
Other Products	728	734	792	954	802	13.8
Total Products	2,390	2,099	2,234	2,573	2,324	9.6
Crude Oil Imports	5,235	5,661	6,048	5,987	5,736	15.1
Total Imports	7,625	7,760	8,282	8,560	8,060	13.5
Other Supply	898	939	898	804	885	(16.8)
TOTAL SUPPLY	**18,003**	**18,022**	**18,574**	**18,757**	**18,342**	**2.4**
Refinery Inputs	13,461	13,909	14,322	14,258	13,991	5.2

CLOSING STOCKS (millions of bbl.)						
Motor Gasoline	232.3	215.0	215.4	225.5	225.5	(1.2)
Aviation Fuels	45.9	46.9	46.3	47.8	47.8	4.4
Middle Distillates	103.0	110.8	136.8	139.9	139.9	7.0
Residual Fuel Oil	42.2	41.5	43.7	45.7	45.7	2.7
Other Products	255.4	282.8	285.4	266.3	266.3	2.6
Total Products	678.8	697.0	727.6	725.2	725.2	2.3
Crude Oil Stocks	327.7	326.0	337.3	344.1	344.1	3.9
TOTAL STOCKS	**1,006.5**	**1,023.0**	**1,064.9**	**1,069.3**	**1,069.3**	**2.8**

Source: IPAA Supply and Demand Committee, May, 1989.

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August 1989

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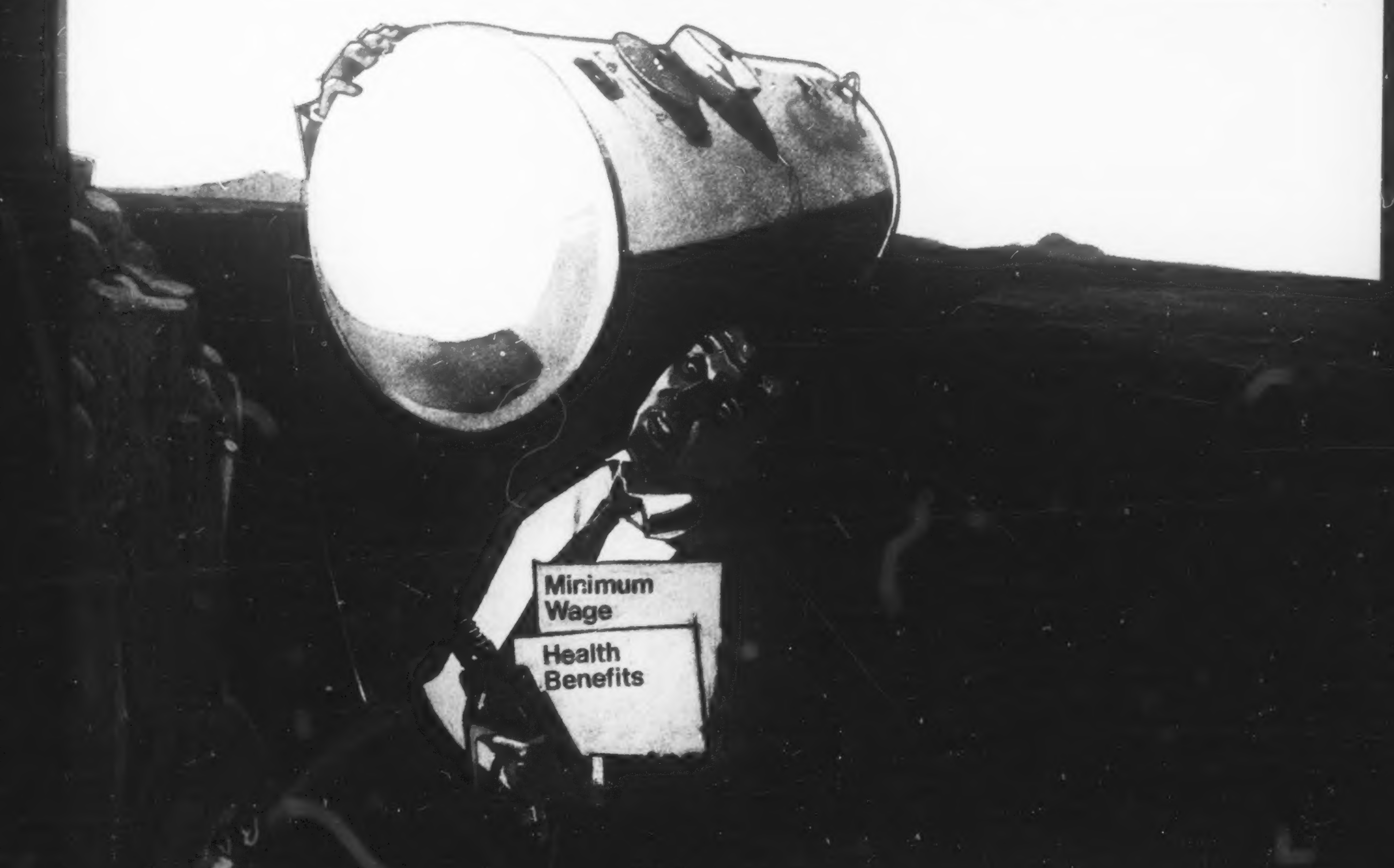
What's Behind Ashland's Growth Strategy
Clean Air Proposals Spark Jobber Concern
How TBA Buying Group Plans Comeback

NPN

National Petroleum News



Impact Of Regs, Legislation Has Jobbers Teetering

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Editor's Viewpoint

"Half a league, half a league, half a league onward, all in the valley of death . . ."

Marketers today must be feeling a bit like the famous cavalrymen immortalized in Tennyson's epic poem "The Charge of the Light Brigade." Though not literally riding into a valley of death, they're definitely under the gun, facing a seemingly endless barrage of regulations and legislation, all hitting within a short span of time.

"Cannon to the right of them . . ." Underground storage tank and financial responsibility regs;

"Cannon to the left of them . . ." Stage II, new RVP standards;

"Cannon in front of them . . ." Mandated health benefits, proposed minimum wage hikes.

The combined impact of these and other regulatory and legislative bombshells has blown craters in the bottom line results of most jobbers and the effect has and will be serious.

"Stormed at with shot and shell while horse and hero fell . . ." Heavy casualties are expected, the only question is how heavy. A PMAA membership survey indicated 27,000 to 35,000 stations could shut down within a year because of environmental regulations alone. A SIGMA survey revealed a less dramatic fallout—2.2% of its member's stations closed in 1988 for environmental reasons and 4.1% are expected to shut down this year for the same reason. That's about 1,000 outlets lost in two years. The disparity is due to SIGMA members typically being larger than PMAA's (smaller and rural jobbers are most endangered) and differently framed survey questions.

The industry consensus, then, is that many jobbers will fall, either forced out of business by costs and problems associated with the regs and laws or because they're just fed up and voluntarily decide to bail out.

"Their's not to make reply, their's not to reason why, their's but to do and die . . ." Sorry, but that's where jobbers part company with the cavalry. Those who couldn't reason are long gone. The survivors have proven amazingly resilient and adaptive—not to mention tough and crafty.

And there's the bright side. Those kind of people don't go belly-up very easily. Many jobbers now being counted among the walking wounded will probably be back in the saddle in short order. There is a good chance, I think, that more jobbers than expected will overrun the obstacles and the casualty rate will be lower than anticipated. *"Plunged in the battery smoke, right through the line they broke . . ."*

—Frank Victoria

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Minimum Wage
Health Benefits

All petroleum marketers are getting hit hard by a wide assortment of new government mandates. But everyone agrees that small jobbers are the most seriously threatened segment of the industry.

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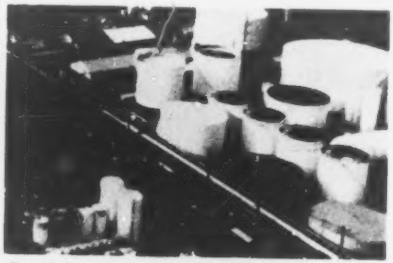

Surviving the crisis of a massive oil spill in the Ohio River last year, Ashland Oil is moving ahead to strengthen its operations in three major areas.

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Dealer TBA buying groups have come and gone over the past 20 years or so, but one group—PRO-USA out of Salt Lake City—plans to make its presence felt with national drop-ship program and other initiatives.

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• TRENDS

Crude Prices In '90s May Not Be That Bad

How high are crude oil prices really going to get in the '90s? And what about that turn-of-the-century, now only 10 years away? In recent times, "guesstimates" and speculation have produced projections up to $100/bbl.

That could happen, of course, but the probability factors have all but deflated that sort of an economic nightmare—at least for now. On the other hand, there is a warming feeling that crude oil price increases may be relatively moderate in the years ahead. By 2000 A.D., the optimists think, crude prices should still be well under the wild days of 1979-1980 when they doubled and tripled and sent product prices skyrocketing and $40 to $50/bbl. crude wasn't unusual. Neither were $1.40 regular and $1.60 premium gasolines.

Conoco, which only recently resumed making long-term projections after a two-year sabbatical, says it believes that crude oil prices will remain below the $20/bbl. level, where they are now, until the mid '90s, at which time they will have risen to about $24/bbl.

This is based on the idea that the Organization of Petroleum Exporting Countries will opt for moderate pricing formulas in the 1990s despite the growing dependence of the United States on imports. A Conoco analyst says: "I think OPEC learned some lessons by setting the price too high in the past."

The federal government is tilting in that direction too. Its recent Annual Outlook for Oil and Gas used the conventional three-tiered high-low-base forecast. Significantly, the highest price projection it made for 2000 was $35/bbl. That's a bit steep, of course, but it's still below the average landed prices of $38 to $39/bbl. in 1981. This forecast is shown in Chart A.

Everybody's entitled to a guess and a prediction, of course, and further along in its recent report the government economists show that others are about in the same ball park. They matched their 1989 and 1987 forecasts with those of Data Resources, Inc., Wharton Econometric Forecasting Associates, Gas Research Institute and American Gas Assn. That's shown in Chart B.

All of the projections are tied in closely with Gross National Product (GNP) expectations. Chart C shows what the various prognosticators (excluding AGA, which had no data available) foresee for the Real GNP in terms of billions of 1988 dollars.

— by J. Richard Shaner

CHART A
World Crude Oil Price
(1988 dollars per bbl.)

	1988	1990	1995	2000
Base	**$14.64**	**$15.00**	**$20.60**	**$28.00**
Low Price	14.64	12.89	16.70	21.70
High Price	14.64	18.00	24.40	35.00

CHART B
World Crude Oil Price *
(1988 dollars per bbl.)

	1988	1990	1995	2000
Federal '89	$14.64	$15.00	$20.60	$28.00
Federal '88	17.39	18.43	23.18	31.84
DRI	14.92	16.10	18.48	24.43
WEFA	14.77	13.08	16.95	21.19
GRI	18.98	21.32	24.18	28.08
AGA	16.17	16.34	20.00	24.48
Average	16.15	16.71	20.57	26.34

* U.S. refiners average acquisition cost of crude oil.

CHART C
(Billions of dollars)

	1988	1990	1995	2000
Federal '89	$4,851	$5,119	$5,775	$6,517
Federal '87	4,717	4,975	5,576	6,179
DRI	4,851	5,057	5,666	6,348
WEFA	4,768	4,971	5,645	6,401
GRI	4,772	4,960	5,541	6,250

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

MAY	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$1.152	$1.098	$1.119	$1.278
Regions				
Northeast	1.149	1.052	1.096	1.289
North Central	1.161	1.125	1.129	1.299
South	1.135	1.086	1.098	1.243
West	1.170	1.107	1.158	1.317

Source: U.S. Dept. of Commerce, Bureau of Labor Statistics.

STOCKS (add 000 bbl.)

	6/30/89	7/1/88
Gasoline (total)	220,380	209,739
Gasoline (unleaded) *	157,194	132,088
Jet Kerosine	39,625	38,704
Distillates	100,434	111,364
Residual	43,212	41,113

** Included in gasoline total.*
Source: American Petroleum Institute.

SIGMA Confirmation: Environmental Regs Are Killing Smaller Stations

In a survey that contrasts numerically—but generally supports earlier findings by Petroleum Marketers Assn. of America—the Society of Independent Gasoline Marketers of America confirms that environmental regs are killing off smaller service stations, many of which are in rural areas where big volumes are impossible to achieve and sustain.

SIGMA, in its latest annual profile, says its members closed 2.2% of their stations in 1988 and expect to close another 4.1% in 1989 because of the economic impact of the environmental regulations.

SIGMA says this means that more than 1,000 of its members' gasoline stations have or will be shutdown in the two-year period. This is miles apart from the PMAA study earlier this year, which said 25,000 to 35,000 gasoline stations were facing economic execution by the end of 1989 because of underground storage tank and liability insurance problems [*NPN*—Mar. '89, p77].

SIGMA was quick to note that its survey procedures differed from those of PMAA, the questions were not the same and—most of all—its membership, consisting mostly of large chains and combinations, was positioned better to withstand the economic fallout than the smaller PMAA members.

"SIGMA members typically own and operate 51 outlets and supply another 27," says executive director Ken Doyle. Of greater significance than the closing, says Doyle, was the high cost of environmental compliance to keep stations open.

Members reported in the survey that they had spent $130-million in 1988, excluding insurance. This, he says, averages $410,000 per company or $8,000 per station—more than twice the 1987 averages.

Doyle also noted that the average company invested $238,500 in environmentally-related equipment in 1988 and more than $100,000 per company ($2,000 per station) on staff time to comply with record-keeping and reporting. Environmental testing cost another $72,000 per member or $1,400 per station.

In its report, SIGMA proudly said its membership is now 315 in all 50 states, Puerto Rico, Canada and the Southwest Pacific. The report added:

SIGMA member companies sold 22.7-billion gal. of fuel in 1988, which represents almost 17% of the 134.4-billion gal. of motor fuel sold in the United States last year. SIGMA members also accounted for the sale of $4.6-billion worth of non-fuel items.

SIGMA members supplied 25,700 service stations in the U.S., of which 11,000 were direct-ops and the balance mostly contracts.

SIGMA members employ 93,000 individuals and, through their networks, are responsible for 102,800 additional jobs.

Individually, this is what the average SIGMA member looks like:

- Motor fuel supplied: 72-million gal.
- Non-fuel items sold: $14.6-million.
- Retail outlets supplied: 78.
- Direct-ops: 35.
- Employees: 298.
- Average employees per direct-op: 8.5.
- Remodeling/refitting: $850,000.
- New construction: $1.05-million.

Here's a breakout on capital spending, including environmental items:

	All SIGMA Members	Avg. Per Company	Avg. Per Owned Outlet
New Stations*	$330,000,000	$1,050,000	NA
Remodel/Refit	270,000,000	850,000	NA
Total capital	600,000,000	1,190,000	$35,000
Environ. Equipment	75,000,000	238,[illegible]00	4,700
Environ. Testing	23,000,000	72,000	1,400
Environ. Compliance	32,000,000	100,000	2,000
Total Environ.**	130,000,000	410,000	8,000

* Excluding land; ** excluding insurance.

PRI Boosts Capacity At Hawaii Refinery

Honolulu-based Pacific Resources, Inc., will increase its refinery capacity by 15,000-b/d to 95,000-b/d at a cost of $25-million, says the company.

The boost in refinery capacity is a major step toward increasing downstream capacity, says Robert G. Reed III, company chairman and CEO.

Among other things, the project will increase jet fuel and diesel production for the Hawaii market, Reed says.

The project will involve identifying factors that restrict current production and modifying them to increase production.

PRI's refinery, located on the island of Oahu, last underwent an increase in capacity in July 1988, going from 67,900-b/d to 80,000-b/d.

(*Bush . . . continued from page 23*)

environmentally redeeming quality except during one instance: refueling, says an industry official. At least one association exec puts the percentage of the time a car is being refueled at a fraction of 1%.

Missouri's Hahn says another loophole in the Stage II theory is consumer competency in operating the uncooperative nozzles. He says the Stage II nozzle has to remain in the motorists fuel tank for 10 seconds after the flow of gasoline is halted in order for the vapors to be retained.

If St. Louis, where Stage II equipment has been in place for about a year, can be considered a pilot market, scores of petroleum marketers will be raising white flags. Hahn speculates that by the end of 1990 Stage II will thin St. Louis marketers by 25%.

Hahn says Stage II translates to a stinging initial installation cost of between $20,000-$25,000 per station. But another problem is that the bills with Stage II keep on compounding; $2,500 per station, per year is typical maintenance, he says. PMAA has put Stage II installation at $30,000 an outlet.

Hahn, when asked what merit Stage II has, says, "None at all."

Eric Kroesche, PMAA senior vice president, attacked Stage II when he addressed a House Energy and Commerce subcommittee last spring, saying consumers often incur refueling overflows with Stage II.

He also cited the need for equipment inspection to identify deficiencies in the Stage II devices.

The Southern California Service Station Assn. humorously hypothesizes, "The motorist in the 1990s will typically be driving a high performance engine through gridlock, stopping periodically to refuel and spill methanol on his shoes from a vapor recovery nozzle." Along with humorous, harrowing as well.

With the indictment of Stage II coming from EPA, an authority intimate to Bush—and from other corners also—why did the president choose to defy the anti-Stage II lobby? According to PMAA, Bush may have wanted to tackle the ozone levels where they were highest rather than on a more indiscriminate basis. "Speculation is that he preferred a localized strategy applicable only to certain non-attainment areas rather than the broad national approach provided by on-board canisters."

Another theory that has been circulating is that John Dingell (D-Mich.), the influential Democratic chairman of the Committee on Energy and Commerce, would not have stood for a measure that included on-board canisters.

Of course, the president's clean air plan, without the validation of Congress, is sunk. Should legislators agree to Bush's revisions, the plan would become effective Dec. 31, 1989. It would be the first time in a dozen years that Congress will have significantly altered the Clean Air Act.

Majors Unveil Aggressive Plan To Prevent And Contain Oil Spills

Prodded by the Exxon Valdez disaster which caused the largest oil spill in U.S. history, the nation's biggest oil companies unveiled a $250-million program to prevent "catastrophic" spills.

Outlined in the program are plans for prevention, containment and cleanup of major oil spills as was seen this past March when an Exxon Corp. tanker collided with an underwater reef in Alaskan waters spilling more than 200,000-bbls. of crude.

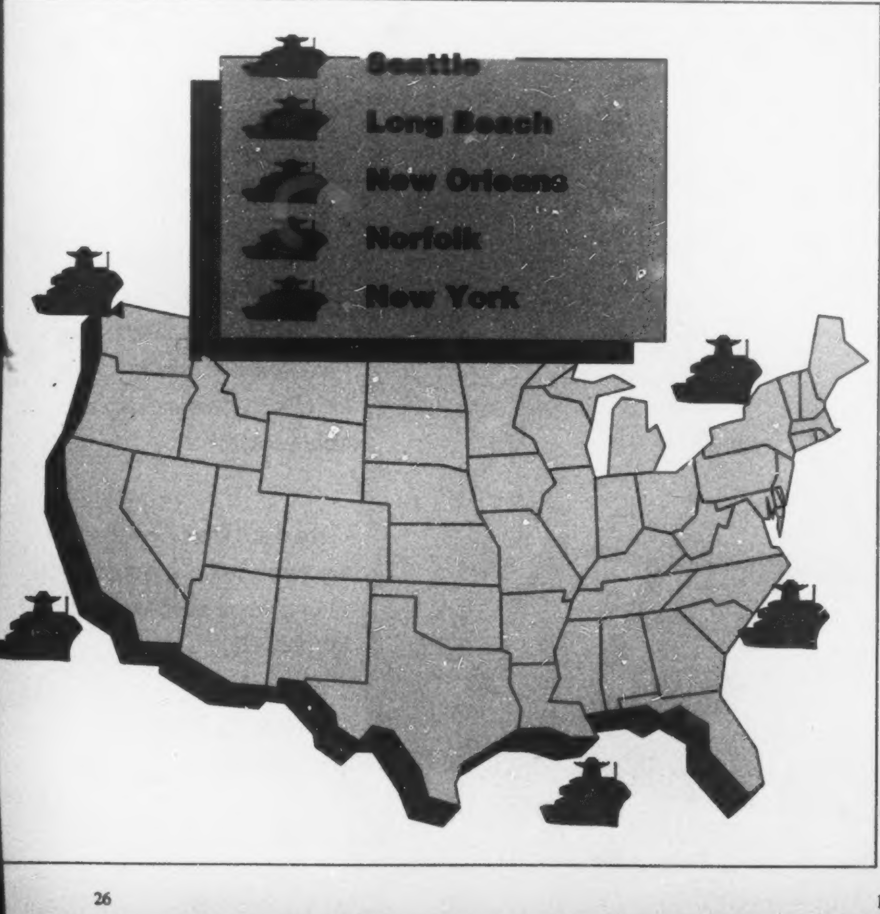
The program calls for the creation of an independent agency called the Petroleum Industry Response Organization (PIRO), which will establish a Washington headquarters and five regional response centers that will be manned around-the-clock and equipped to act quickly in the case of any giant spills. The regional response centers will be located in five cities: Seattle, New Orleans, New York, Norfolk, Va., and Long Beach, Calif.

The port of Valdez would remain, however, under Alyeska Pipeline Co.'s jurisdiction. The Seattle facility, as well as any of the others outlined in the program, would provide assistance to the owners of the Alyeska Pipeline Co., which is currently providing an improved emergency response facility for Valdez harbor and Prince William Sound as necessary.

Objective	Estimated $k/yr.	
	Yr. 1-2	Yr. 3-5
•Preventing loss from/away from ship	150	150
•On-water oil recovery and treatment	2,650	1,850
•Preventing and mitigating shoreline impact	3,450	1,675
•Fate and effects of oil in the environment	2,100	1,100
•Wildlife preservation	700	150
•Health and safety	300	50
Total per year	9,350	4,975
Overall for period	18,700	14,925
Grand total	33,625 ($30-$35-million)	

The industry task force, composed of the CEOs of the eight largest U.S. oil companies: Amoco Corp., Atlantic Richfield Co., BP America Inc., Chevron Corp., Exxon Corp., Mobil, Shell Oil Co. and Texaco Inc., also recommended changes in tanker operations and encourages the funding for extensive research into spill control and mitigation.

Mobil Corp. chairman Allen Murray and chairman of the eight-member task force that the API created April 7 in the wake of the Valdez accident in Prince William Sound, explained that, "The three-part program will provide improved environmental protection wherever tankers operate in U.S. waters."



Industry shortcomings

Calling for more government oversight in shipping and cleanups, the task force acknowledged some of its shortcomings in its existing methods of handling big oil spills along the U.S. coast.

Murray said, "The industry has a good record in responding to non-catastrophic spills. Catastrophic spills have been infrequent." He added, "The industry has neither the equipment nor the response personnel in place and ready to deal with catastrophic tanker spills . . . Industry can promise only its very best efforts in responding to such spills."

"Speed and decisiveness are critical to effective spill response and the procedures in place in the U.S. are hardly conducive to either," Murray explained.

According to API, the petroleum industry officials emphasized that it cannot guarantee the government or the public that all tanker spills resulting from an accident can be eliminated. But it explained that it will provide more preventative measures, greater availability of much needed equipment and trained manpower to deal with a potential spill, including containment and cleanup.

Some oil industry officials say existing oil spill cooperatives can only handle spills of about 10,000-bbls.

Under the new plan, each center will be equipped to respond to a spill of approximately 200,000-bbls. (30,000-tons)

(Continued on page 34)

Fuel-Switching For Power More Limited Than Thought

There's less flexibility in fuel-switching for industrial and power needs than most petroleum marketers realize, an Energy Information Administration study on this subject says.

Published in May but not distributed until mid-June, the study says that only 3% of the petroleum consumption in 1989 could be switched within a 30-day period in the event a major supply disruption occurs.

In the same vein, if the switch has to last six months or more, the maximum is only about 3.5%.

The study assumes the switching could be sustained indefinitely using existing equipment and without any loss in economic activity or well-being.

Here are the EIA's findings:

Projected Emergency Fuel-Switching Capability 1989
(000-b/d)

Sector	Consumption	30-Day Switching Capability	180-Day Switching Capability
Total Industrial	4,330	227 to 268	227 to 304
Manufacturing Heat and Power	345	106 to 119	106 to 137
Other Industrial (a)	3,985	120 to 148	120 to 167
Residential	890	97 to 135	97 to 140
Commercial	540	28 to 49	28 to 52
Utility	510	0 to 70	0 to 70
Transportation	17,210	352 to 540	352 to 653

(a) Includes petroleum use in agriculture, construction and mining, feedstocks, liquefied petroleum gases and coke.

Source: EIA Estimates of Short-Term Petroleum Fuel-Switching Capability, published May 1989.

Auto Mechanics' Reputation Needs Overhaul, Groups Urge

The stereotyped perception of the auto repairman, i.e. a "grease monkey" that conducts business in a cramped, dismally lit garage, "must improve in order to [draw] skilled technicians," according to the Automotive Information Council.

A change in terminology over the years—from "grease monkey" to the more dignified auto "technician"—must be accompanied by a broader knowledge of the complex engine says AIC.

"Changes in motor vehicle technology have come—and will continue to come—so fast that technicians working on today's vehicles must learn about more new systems every year than mechanics of the 1950s and 1960s had to learn in 10 years," says Robert Calderone, AIC president.

The industry, according to AIC, must improve some of its shortcomings if it is to serve adequately.

Calderone says incoming personnel need to be more attuned to today's demands which means a sharper focus in high school and vocational school, and, secondly, todays current batch of technicians also must upgrade their overall skills.

Despite the insurgence of computerization and today's considerable mechanic population (one estimate says there are 650,000 in the field), some industry groups are predicting an even greater manpower shortage.

According to AIC, "Industry trade groups are looking for solutions to the car repair crisis and are predicting it will get even worse."

AIC says Goodyear Tire & Rubber Co. has figured the vehicle to technician ratio for the 122-million cars cruising America is 235-1.

Unsatisfactory pay may not be at the root of the technician drought. "Highly qualified and experienced technicians throughout the country can earn $40,000 to $50,000/yr.," says AIC.

CASI Offers New Credit Card

Fast lube operators can recoup as much as $800 annually, per outlet, in credit card processing in a program the Convenient Automotive Services Institute, along with Credit Card Software Systems, Inc., has created.

Six petroleum marketers opted for the Credit Card Merchant Discount Program within a week of its introduction, reports G. Lawrence Northup, CASI executive director. Northup says a marketer needs to be a CASI member and have an electronic "card swiper" which Northup says costs about $250; there are no fees.

CASI/Credit Card Software Systems' discount rate is 1.39% plus 25¢ for each transaction. Northup explains that the percentage received by a bank from a transaction in the fast lube business averages 3.4%, according to a CASI survey.

Northup says processing goes 1% or so beyond that in some instances.

For a chain of stores or for an operator that has more than 3.4% clipped from a transaction, the money salvaged is greater, CASI notes. The electronic scanning used in the program also helps to reduce the number of times risk is assumed. According to CASI, the program "utilizes advanced electronic scanning equipment to minimize back charges, deposit delays and the cost of accepting overdrawn or stolen credit cards."

Inquiries on the Credit Card Merchant Discount Program can be directed to the CASI office at P.O. Box 34595, Bethesda, Md., 20817 or (301) 897-3191.

PMAA Announces Staff Restructuring

The Petroleum Marketers Assn. of America has restructured its staff somewhat to expand operations and to replace its fuel-oil specialist who was terminated in late spring.

Executive vice president Phil Chisholm named Amy Graham, staff counsel for transportation, OSHA, Superfund and other issues, as heating fuels counsel, succeeding Richard Cahoon. A successor is being sought to take over Graham's old job. She has been with PMAA for three years and has a B.A. from Syracuse University and a J.D. from Albany (N.Y.) Law School.

Chisholm also announced the promotion of Al Cobb to vice president for legislative and political affairs and named staffer V.A. Stephens as his assistant.

Chisholm said that when all positions are filled, the staff will number 20 persons and all will be accommodated without exceeding budgetary levels approved last October.

Low Refinery Supply, EPA Regs Spark Spot Product Shortages

Scattered shortages have been reported throughout the Midwest in the early summer months, as refineries, responding to low crude prices and new Environmental Protection Agency standards on gasoline volatility, have found themselves tight on supply.

Parts of Iowa, Nebraska, Kansas, South Dakota, Illinois, Texas, North Carolina, Colorado and Wisconsin have reported shortages of supply and long lines at the terminals.

One South Dakota marketer explains that all but one of his 13 supply sources was out of product. Where his transport drivers were used to simply dropping by and immediately picking up a load, 10 to 18-hour waits are now commonplace.

Many factors have come together to create this summer of spot shortages, observers say. Among these factors are the EPA's new volatility standards that lower the Reid Vapor Pressure (RVP) of gasoline, low crude prices forcing refineries not to keep any excess supply, the traditionally high demand for gasoline in the summer, refinery repairs and periodic testing by pipeline companies.

The new RVP regulations, effective June 1, have limited refinery capacity and prevented the sale of gasoline not brought up to standard. RVP problems are said to be causing shortages in Texas, Colorado and North Carolina, where refineries are unable to come up with supply that meets the specs.

A spokesman for the Williams Pipeline says low supply from refiners, the RVP standards and line testing have combined to create some of the problems in the Midwest.

Some observers feel the RVP standards are just one factor affecting supply. One Lincoln, Neb., marketer says with the price of crude being so low, refiners have no incentive to keep extra supply for times like this. "There used to be a cushion of supply. Now with crude prices so low, no one can afford to be sitting on any extra supply," the marketer says.

Outages in the Midwest were also attributed to line testing being conducted by the Williams Pipeline and technical problems on the Kaneb line.

Marketers say few of the supply problems have affected consumers. A handful of reports of stations closing for a few hours have surfaced, but the majority of the lines have not been at gasoline stations, but at the terminas.

Many marketers have been forced to send their transports out of state for product. "We're having to pay an extra 3-5¢/gal. for freight," says the Nebraska marketer.

While problems with pipelines have been overcome, tight supplies and strong demand in some areas will force more temporary outages through the summer, observers predict.

Reporting, Record Keeping Vital In UST Compliance

Underground storage tank owners not only have to meet EPA guidelines for leak detection, corrosion and spill protection, now they have to prove their compliance as well, says a UST testing firm executive.

Tank owners must report significant facility activities such as openings, closings and repairs to state and local authorities and maintain detailed records of UST operations under new EPA guidelines. "In the past, UST owners/operators needed to report only at the beginning and end of their tanks' operating lives," says Jeffery Johnsen, manager of Professional Tank Services, Ltd., Schiller Park, Ill.

"However, if tanks undergo modifications or repairs, or should a release occur, authorities must be notified within pre-established time periods," Johnsen says. Owners now have 24 hours to report a leak. They must also provide a plan of action to correct the leak and, later, documentation that the leak was cleaned up.

When tanks are installed, owners are required to complete a notification form, which is available from each state's approved regulatory authority. The forms require information about the UST, including certification of correct installation. Authorities must also be notified 30 days before a tank is permanently closed.

Owners must report suspected and confirmed releases during a tank's operating lifetime and, in case of a confirmed release, report remedial actions that are planned and taken to correct damage from a leak.

"Additionally, UST owners must maintain compliance records that can be provided to an inspector during on-site visits," Johnsen says. "Records must prove that [tanks] meet requirements in four major areas—leak detection, corrosion protection, repairs/upgrades and post-closure assessments."

Johnsen points out that leak detection performance and upkeep records must include last year's monitoring results, the most recent tightness test, copies of performance claims provided by leak detection manufacturers (for five years), recent maintenance and repair activities and the calibration of leak detection equipment installed on-site.

Owners must also keep records showing that the two most recent inspections of their facilities' corrosion protection systems were carried out by properly trained professionals, that repairs and upgrades were properly made and, depending on usage, that the tank passed a tightness test and internalinspection.

For at least three years after a tank closing, owners must maintain records of site assessment results required for permanent closure. The results should explain any impact a UST has had on the surrounding areas.

"We have worked with UST operations in all parts of the country," Johnsen says. "We've found that individual owners should check with state and local regulatory authorities about particular record keeping requirements in their areas. When in doubt, owners should retain old records."

(Majors . . . continued from page 26)

and each center will be available to support a spill elsewhere. Thus, this will greatly increase the industry's ability to respond to a devastating oil spill.

Funding

The petroleum industry has already agreed to put up between $70-million to $100-million to get the new organization up and running.

The estimated annual outlay for keeping the PIRO program in operation will run between $30-million and $35-million thereafter. PIRO is expected to be operating by year end and it will employ 285 people. Each of the five regional centers would have $14.7-million of equipment and personnel on hand.

Fourteen major oil companies have agreed to fund the organization through an increase in charges already levied on oil brought into U.S. coastal ports.

The task force recommends that the secretary of transportation, through the Coast Guard—which has a presence around the nation's coasts and a military command structure—oversee and manage major oil spills, while PIRO would provide equipment and skilled personnel to respond to any spills.

Other recommendations by the task force include: expanding the Coast Guard's authority to randomly test for drug and alcohol among tanker crews; expanding research on the environmental impact of oil spills and remediation procedures and increased lobbying efforts for more stringent regulations of oil tankers.

—Peggy Smedley

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September 1989

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How Road Runner Purchase Helps Total
What Oil Companies See In Quick Lubes
Why Industry Wants Oil Spill Legislation

NPN

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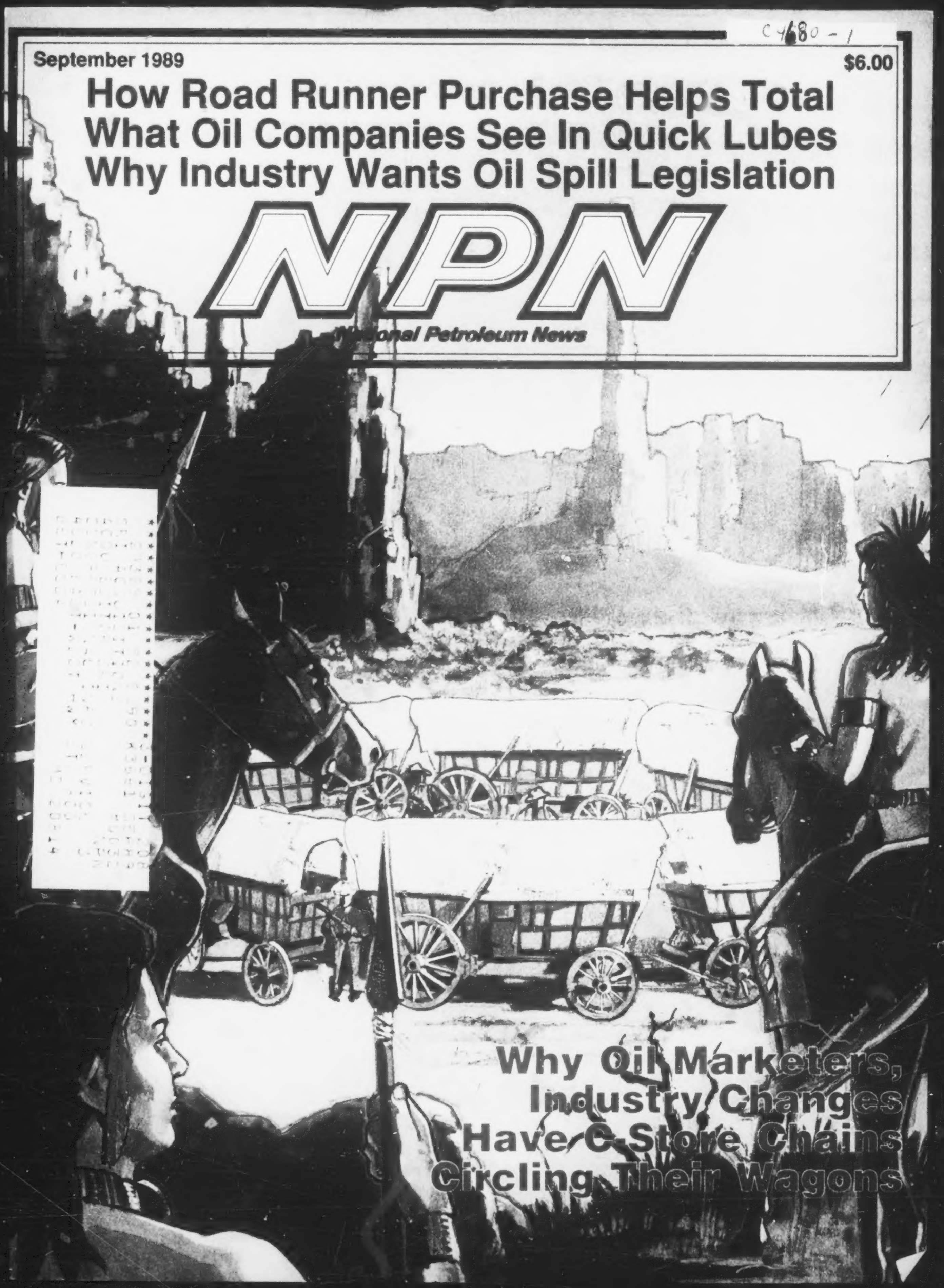

Why Oil Marketers, Industry Changes Have C-Store Chains Circling Their Wagons

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Editor's Viewpoint

There's little, if any, doubt that the convenience store industry is now in the midst of a transformation shaped by forces from both within and outside of the industry itself. One of the most significant developments in recent years, as this month's cover story notes, is the continued rapid and growing influx of oil companies and jobbers into the C-store market.

Jobbers no doubt have good reasons for entering or expanding their operations in the C-store business—but a caution light should be flashing. There'll be a lot of people chasing their tails in that market in the next few years and, unfortunately, some will catch them. A shakeout, say some industry watchers, is inevitable; others say it's already underway.

That's not to say that jobbers should necessarily shy away from C-stores. In fact, one industry analyst thinks jobbers probably have the best chance of succeeding. They operate, he says, fewer stores within smaller marketing areas than the large, multi-state chains, which means that their administration and control is less of a problem and less costly. Also, jobbers have a keen understanding of their market, so they'll target the best locations for stores and tailor them to meet the specific demands of the specific locales.

Just the same, many parts of the country are saturated with C-stores and the intense competition has hammered down per-store sales, prices and profits. And total overall convenience store sales nationally increased only 2.7%, according to the National Assn. of Convenience Stores, from $59.6-billion in 1987 to $61.2-billion in 1988—a sharp drop from the 10.7% increase in 1987 and even lower than the relatively small 4.9% increase of 1986. This may reflect what John Roscoe, author of the *Dollars Per Day Survey*, says is a shift in consumer attitudes. Roscoe, a former C-store operator who now runs a string of discount food and liquor stores on the West Coast, says more consumers are more price conscious these days and don't believe convenience is worth the higher prices charged at C-stores. He estimates this price sensitive mass market consumer represents about 90% of demand for most items, leaving only the remaining 10% for the convenience segment.

Meanwhile, the average cost of operating a C-store continues to escalate, as does building a store. From 1984 to 1988, says NACS, the cost of opening a C-store in an urban area increased more than 55%; in a rural area, by 49.4%

Higher costs, more competition vs. sagging sales and lower profits. Risky business. The C-store market is hostile territory. That's not exactly unfamiliar turf for most jobbers, but it warrants a very careful and cautious approach.

—Frank Victoria

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Traditional C-store chains are circling their wagons in the face of increasing competition from oil companies and jobbers as well as continuing changes within the industry itself. **Page 36**

Oil companies initially dabbled in the quick lube market. Now, however, the dabbling has turned into a full-fledged plunge. **Page 64**

With the purchase of Truman Arnold's Road Runner chain, Total Petroleum has suddenly become a significant factor in U.S. gasoline marketing. **Page 68**

2nd Quarter Profits Waffle As Wholesale Trail Crude

Street prices for gasoline rose briskly in the second quarter but rising crude costs and lagging wholesale sales took the edge off what could have been a nice fat period upstream and downstream for all.

Shell and Marathon were standouts, however, with earnings increases of 60.6% and 116%. Arco and Phillips posted earnings increases of 16.8% and 15.9%.

Amerada Hess, which had a weak first half in 1988, bounced back with net earnings of $353.7-million, an increase of 738% for the six-month period.

As it has several times in the past, Marathon made its owner, USX Corp., look good again. Marathon doubled its operating profits in the second quarter, enabling USX to report a 17.3% increase. An interesting offshoot of Marathon's performance was the wording used by the New York Times financial writer in describing USX as the "giant oil and steel company." Up to now it has been pretty well the other way around.

Battered Exxon, still reeling from its Alaskan oil spill agonies, said it would have earned $1-billion more than the $160-million it reported if it hadn't been for that industrial catastrophe.

UPSTREAM: SECOND-QUARTER AND FIRST-HALF EARNINGS

(Millions of Dollars)

Company	2nd Qtr 1989	2nd Qtr 1988	% Chng	1st Half 1989	1st Half 1988	% Chng
Exxon	$160.0	$1,200.0	(86.7%)	$1,430.0	$2,655.0	(46.1%)
Mobil	401.0	519.0	(22.7)	830.0	1,068.0	(22.3)
Chevron	404.0	520.0	(22.3)	717.0	1,173.0	(38.9)
Amoco	497.0	667.0	(25.5)	955.0	1,136.0	(15.9)
Shell	440.0	274.0	60.6	801.0	663.0	20.8
Texaco	366.0	464.0	(21.1)	1,821.0	734.0	140.0
BP-America	631.0	520.0	21.3	1,151.0	975.0	18.1
Arco	467.0	400.0	16.8	1,170.0	801.0	46.2
Phillips	197.0	170.0	15.9	387.0	300.0	29.0
Conoco	115.0	137.0	(16.1)	332.0	249.0	33.3
Unocal	120.0	64.0	87.5	207.0	242.0	(16.9)
Marathon*	257.0	119.0	116.0	498.0	203.0	145.3
Sun	105.0	(291.0)	--	186.0	(141.0)	--
Coastal	35.3	38.6	15.5	95.7	77.1	24.1
Amer. Hess	133.5	(23.5)	--	353.7	42.2	738.2
Pennzoil	118.0	1,388.7	(91.5)	170.0	1,400.0	(87.9)
Ashland**	43.5	56.9	(23.6)	125.6	157.7	(20.4)
Kerr-McGee	34.7	35.9	(3.3)	98.6	46.1	113.9
Petrofina	41.8	34.4	21.5	90.6	64.8	39.8
Murphy	16.8	9.4	(78.7)	32.2	3.0	673.3
Citgo	39.2	33.9	15.6	75.8 7	5.7	--

DOWNSTREAM: Ups, Downs and Standstills

Exxon (Tot)	$232	281	(17.4)	379	712	(46.8)
Foreign	133	118	(26.5)	240	518	(53.7)
Domestic	99	100	(1.0)	129	194	(28.4)
Mobil (Tot)	100	260	(61.5)	225	482	(53.3)
Foreign	(11)	171	--	38	292	(87.0)
Domestic	111	89	24.7	187	190	(1.6)
Chevron (Tot)	166	123	35.0	216	322	(32.9)
Foreign	63	32	96.9	106	97	9.3
Domestic	103	91	13.2	110	225	(51.1)
Amoco Worldwide	213	206	3.4	327	312	4.8
Shell (U.S.)*	132	103	28.2	243	233	4.3
Texaco (Tot)	208	175	18.9	335	333	0.6
Foreign	128	65	96.9	221	130	70.0
Domestic	80	110	(27.3)	114	203	43.8
BP-America	188	121	55	356	240	48.3
Arco (U.S.)	91	72	26.4	108	159	(32.1)
Phillips (U.S.)	62	66	(6.1)	113	115	(1.7)
Marathon*	169	107	57.9	235	136	72.8
Sun (Tot)	72	79	(8.9)	151	121	24.8
Foreign	7	1	600.0	19	3	533.3
Domestic	65	78	(20.0)	13	118	11.9

*Operating income, not net; **Third quarter, fiscal ends 9/30/89

• TRENDS

Crude Prices In '90s May Not Be That Bad

How high are crude oil prices really going to get in the '90s? And what about that turn-of-the-century, now only 10 years away? In recent times, "guesstimates" and speculation have produced projections up to $100/bbl.

That could happen, of course, but the probability factors have all but deflated that sort of an economic nightmare—at least for now. On the other hand, there is a warming feeling that crude oil price increases may be relatively moderate in the years ahead. By 2000 A.D., the optimists think, crude prices should still be well under the wild days of 1979-1980 when they doubled and tripled and sent product prices skyrocketing and $40 to $50/bbl. crude wasn't unusual. Neither were $1.40 regular and $1.60 premium gasolines.

Conoco, which only recently resumed making long-term projections after a two-year sabbatical, says it believes that crude oil prices will remain below the $20/bbl. level, where they are now, until the mid-'90s, at which time they will have risen to about $24/ bbl.

This is based on the idea that the Organization of Petroleum Exporting Countries will opt for moderate pricing formulas in the 1990s despite the growing dependence of the United States on imports. A Conoco analyst says: "I think OPEC learned some lessons by setting the price too high in the past."

The federal government is tilting in that direction too. Its recent Annual Outlook for Oil and Gas used the conventional three-tiered high-low-base forecast. Significantly, the highest price projection it made for 2000 was $35/bbl. That's a bit steep, of course, but it's still below the average landed prices of $38 to $39/bbl. in 1981. This forecast is shown in Chart A.

Everybody's entitled to a guess and a prediction, of course and further along in its recent report the government economists show that others are about in the same ball park. They matched their 1989 and 1987 forecasts with those of Data Resources, Inc., Wharton Econometric Forecasting Associates, Gas Research Institute and American Gas Assn. That's shown in Chart B.

All of the projections are tied in closely with Gross National Product (GNP) expectations. Chart C shows what the various prognosticators (excluding AGA, which had no data available) foresee for the Real GNP in terms of billions of 1988 dollars. *—by J. Richard Shaner*

CHART A

World Crude Oil Price
(1988 dollars per bbl.)

	1988	1990	1995	2000
Base	$14.64	$15.00	$20.60	$28.00
Low Price	14.64	12.89	16.70	21.70
High Price	14.64	18.00	24.40	35.00

CHART B

World Crude Oil Price *
(1988 dollars per bbl.)

	1988	1990	1995	2000
Federal '89	$14.64	$15.00	$20.60	$28.00
Federal '88	17.39	18.43	23.18	31.84
DRI	14.92	16.10	18.48	24.43
WEFA	14.77	13.08	16.95	21.19
GRI	18.98	21.32	24.18	28.08
AGA	16.17	16.34	20.00	24.48
Average	16.15	16.71	20.57	26.34

** U.S. refiners average acquisition cost of crude oil.*

CHART C

(Billions of dollars)

	1988	1990	1995	2000
Federal '88	$4,851	$5,119	$5,775	$6,517
Federal '87	4,717	4,975	5,576	6,179
DRI	4,851	5,057	5,666	6,348
WEFA	4,768	4,971	5,645	6,401
GRI	4,772	4,960	5,541	6,250

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

JUNE	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$1.150	$1.093	$1.114	$1.278
Regions:				
Northeast	1.160	1.080	1.103	1.296
North Central	1.149	1.111	1.115	1.290
South	1.136	1.083	1.096	1.245
West	1.161	1.096	1.148	1.309

Source: U.S. Dept. of Labor, Bureau of Labor Statistics

STOCKS (Add 000 bbl.)

	7/28/89	7/29/88
Gasoline (all types)	225,960	209,691
Gasoline (unleaded)*	160,576	130,741
Jet Kerosine	41,263	39,701
Distillates	111,500	118,381
Residual	42,186	40,245

** Included in gasoline total*

Source: American Petroleum Institute

By J. Richard Shaner

EAST COAST

Connecticut Proves It Has Good Petroleum Marketing Statistics

Connecticut not only has a good basic system for registering gasoline and fuel oil marketers, it can quickly provide numbers, price ranges, consumption data, etc.—all the vital statistics that may be needed for fingertip reference.

Gals. Sold	No. of Vendors	% of Vendors	% of Retail Sls.
More than 10,000,000	12	2%	22%
5,000,000 to 10,000,000	26	4%	21%
1,000,000 to 4,999,999	153	25%	37%
500,000 to 999,999	141	24%	13%
Less than 499,999	269	45%	7%

This may seem and sound like a non sequitur of major unimportance to petroleum marketers, but Connecticut energy officials were justifiably disconcerted recently when the Nutmeg State was lumped in with other New England states lacking population data on gasoline outlets [*NPN*—June '89, p13].

Connecticut has two annual reports, one on vendor registrations for all petroleum products and the other on energy consumption, prices, etc. Either may be obtained from the state energy division in Hartford. They confirm that the population total cited in the NPN survey in May (2,000) was almost right on the nose—2,060 registered outlets. They were concerned, however, about the misbranding of their record-keeping operations.

An interesting number that literally jumped out of the registration report was that 143 retail outlets said they sold less than 5,000-gal. of gasoline in the year ended June 30, 1988. How could such low-volume operations survive in a new world where 1-million gal./yr. sales are routine and, as a matter of fact, are becoming essential to survival? The answer: fringe dealerships or perhaps vendors just starting up or undergoing tank replacements or other forms of remodeling and repair requiring interim shutdowns.

Six companies dominated gasoline marketing in Connecticut in the year ending June 1988, as follows: Mobil, 326 outlets; Texaco, 281; Cumberland Farms/Gulf, 247; Sunoco, 226; Citgo, 190; and Shell, 129. Amoco dropped from 200 in 1986 to 58 in '88 while Exxon eroded from 119 to 91 in the same time span.

An interesting aspect of the distillate heating oil segment was that 12 vendors each had sales of 10-million gal., representing 22% of the market. This was an increase of five vendors to the 10-million class in three years. On the other end of the spectrum, 269 vendors had volumes of less than 500,000-gal./yr., representing about 7% of the market and about half the companies in business.

The chart above shows a bird's eye breakout.

Getty Buys RECO, Gets 87 Stores And Outlets

Getty Petroleum Corp., Jericho, N.Y., has added 87 convenience stores and gasoline outlets to its chain of 3,000 on the Atlantic Coast. It also is entering Virginia for the first time, raising its state total to 13.

Getty, already one of the nation's biggest independent marketers of gasoline and other petroleum products, bought RECO Petroleum, Inc., Reading, Pa., for an undisclosed sum of cash.

The C-stores operate under the name of "Mr. Food" and "Country Acres." The company also is a supplier of heating oil in the Reading area and these operations will probably be rolled into Aero Petroleum, which Getty acquired in 1986.

When the contract is signed, Getty will have about 400 C-stores and 2,700 service stations and supply contracts in its marketing-distribution chain.

Merit Oil Sues To Foil Highway Bypass, Cutoff

Merit Oil, an East Coast independent 51% owned by Amerada Hess Corp., says New York-New Jersey Port Authority construction plans will deny access to one of its stations that has been on the same corner in Jersey City for 50 years.

Merit, in a suit filed in Superior Court, accused the Port Authority and Newport Associates Development Co. of rigging up a "deal" which would result in the building of a barrier which, in turn, would shut off the flow of traffic from the Holland Tunnel Plaza exit to its station.

Merit says that because of the proximity of the plaza to its station, it is among the most valuable in its chain. It alleged that Newport Associates abandoned plans to buy the station because of its high cost and that "a deal" was struck by the Port Authority and the developer to proceed with construction without giving objectors an opportunity to intervene.

Agents Grab Truck Stops In Seize/Search Raids

Invoking a 1984 law for the first time, New York state tax agents seized two truck stops, banks accounts and personal items of suspected tax violators before the actual filing of criminal charges.

A spokesman explained that the seizures were authorized by a judge to avoid the possibility that the assets might be disposed of prior to the arrests made in July.

He said formal charges would be filed and that they probably will include tax evasion counts which could lead to felony convictions, jail terms and heavy fines.

Tax agents identified the truck stops as the Big Apple Truck Stop and the Big M Truck Stop, both located in Glenmont, N.Y. Companies involved were Big Apple Truck Stop, Inc., Express Lube, Ajax Energy Trucking, Petroleum Transport and Wholesale Co., Petro-King Fuel Corp., Glenmont Petroleum and Wholesale Co., and Alexander Latsinik Management Co.

Also confiscated were some company and personal bank accounts, several private cars including a Jaguar and a Lincoln Towncar and a tank truck. Counsel for the defendants placed the value of the sized assets at "more than $4-million."

Among the individuals identified by the tax agents were Gregory Uchitel, Bassia Uchitel, Alexander Latsinik, Thomas Foley, Philip Silvergate and Alexander Shadrin.

Karl Felsen, the tax department spokesman, said this was the first time that the 1984 law, which authorizes the seizure of assets in advance of the filing of formal charges, was used.

Expansion-MindedCoastal Looks At Aruba Refinery

Coastal Corp. is trying to save Exxon's old refinery in Aruba from the junkman and, at the same time, position itself for market expansion possibilities in the Southeast and elsewhere.

The refinery, once rated at 400,000-b/d, was shut down in 1985 and a contractor is now in the process of dismantling it. Coastal says it's dickering with the contractor for the equipment and the government for the real estate and start-up licenses.

It hopes to bring negotiations to a head soon so that a course of action can be laid out. It wants to re-open the refinery at a 150,000-b/d rate and then escalate this with the addition of a cat reformer and cracker.

Some sources said Coastal's projected

NACS Public Opinion Survey Reveals Some Positive Attitudes

The findings of a nationwide public opinion survey conducted on behalf of the National Assn. of Convenience Stores (NACS) has revealed some interesting comments on the public's image of convenience stores. Opinion Dynamics Corp., of Cambridge, Mass., polled 1,001 adults—with a 3% margin of error—in November 1988.

The survey was designed to assess the public's attitudes toward the C-store industry in an effort to improve the industry's image overall.

Basically, the results indicate that the C-store industry is perceived in a favorable light. Approximately 64% of the respondents have a somewhat favorable or strongly favorable opinion of the C-store industry, while only one-third expressed negative opinions. The few remaining respondents did not have an opinion on this specific industry, which incidentally scored much higher than insurance companies. Interestingly, though, after the respondents were aware of some of the issues confronting C-store operators many of the earlier opinions changed favoring the industry even more. About 85% of the respondents gave the industry as a whole favorable marks, while only 15% expressed either unfavorable comments or had no opinion at all.

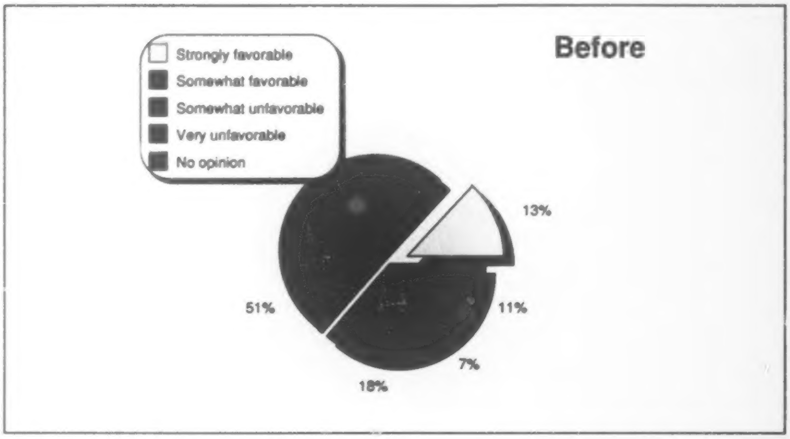
While the survey indicated that high prices are the C-store industry's primary negative, most of the respondents consider employees, proximity to home and hours of service as the industry's greatest strengths.

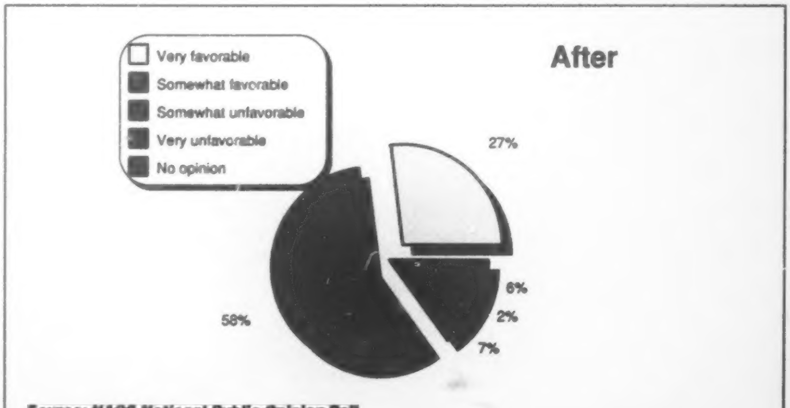
Even though 74% of C-store consumers complain about high prices, 61% of Americans shop at C-stores at least once a week, 27% shop less than once a week and only 12% have never shopped at a C-store.

On a positive note, 74% of the respondents said that C-store clerks tend to be courteous and well-trained, while only a meager 16% disagreed with the aforementioned statement. Seventy-one percent of the C-store consumers acknowledged that a wide variety of products to choose from is important while only 13% said that being able to purchase gasoline and food at the same location is very important to them.

Despite traditionally having a perception of a high-crime facility, 79% of those responding to the seven-day survey feel safe in the general area around the C-store.

Other key issues that are very important to C-store shoppers are getting in and out of a C-store as quick as possible, 67%; avoiding long lines, 78%; dealing with efficient employees, 82%; and 94% consider a large, well-lit store either important or somewhat important.





Source: NACS National Public Opinion Poll

The above charts show how the public's opinion of the C-store industry changed after respondents were confronted with issues plaguing this market. The top chart indicates responses prior to interview screening. The bottom chart was based on responses after screening.

Jury Upholds Mapco Petroleum's Gasoline Pricing Practices

An Alabama jury has ruled that Mapco Petroleum's gasoline pricing practice of selling gasoline 1-3¢ below the majors does not violate the Alabama Motor Fuels Marketing Act (AMFMA).

Amoco-branded jobber McDonald Oil, LaGrange, Ga., filed suit against Mapco last fall challenging these pricing policies. After a two-day trial, the Northern District of Alabama Federal Court jury determined that Mapco's pricing policy—even if it meant selling below cost—did not violate the state law.

"This jury verdict is a substantial victory, not only for Mapco Petroleum, but for independent, unbranded marketers of petroleum products throughout the United States, in that it preserves the industry-old practice of allowing us to meet major brand competition by pricing the traditional 1-3¢ under the majors," says James Alligood, Mapco's vice president of retail marketing. "This type of decision assures that the consumer will continue to have multiple options for purchasing gasoline in the future. Needless to say, we are very pleased with the verdict," he says.

Even though Mapco had filed a counter suit against McDonald Oil, it didn't win any damages and the branded jobber does not have plans to pursue an appeal.

Why Oil Marketers Have C-Store Chains Circling Their Wagons

Like the early frontier pioneers, traditional convenience store companies—Southland, Circle K, et al—carved out a brand new industry in the post-World War II retail market and for years dominated and controlled that fast-growing industry.

But now, traditional C-store firms are circling their wagons, not only to adapt to changing market conditions but to meet a powerful competitive onslaught of petroleum marketers—jobbers, majors and independent oil companies alike—which are aggressively expanding into the convenience store market.

More and more, the traditional chains find themselves in tough head-to-head competition with jobbers and oil companies which are not only increasing the number of outlets they operate but also the size and offerings of these units.

"They (petroleum companies) are very definitely a competitive force in C-store marketing today," notes a Southland spokesperson.

The traditional operators are hunkering down to hold market share, but their work is cut out for them. Although they're still holding strong hands, jobbers and oil companies have some powerful trump cards—the most notable being an overwhelming selection of prime locations, many of which are rapidly being converted from gasoline stations to C-store/pumper combinations. As expected [*NPN*—Sept. '88, p40], in a flat out building race, C-store chains are at a distinct disadvantage. And the race is on—has been for some time.

"There is no question that the best locations are owned by the majors and independents. They also are willing to spend big bucks on those locations," says William Englefield, president and CEO of Newark, Ohio-based Englefield Oil Co. This observation is typical of many in the industry.

Moreover, some of the biggest guns among C-store companies are grunting under the strain of financial woes which are for the most part unrelated to the influx of jobbers and oil companies. Southland, for instance, is selling stores faster than Slurpies as part of a restructuring to become private. Another giant, Circle K, which is hip-deep in expensive store acquisitions, recently put itself on the block.

Complicating matters is that all this is happening in an ominous market environment. In many areas of the country, for instance, the C-store market is saturated and the intense competition has cut overall per store sales and pounded down prices and profit margins.

"Sales have become stale. The market is becoming saturated and it's getting tough to make a profit," says Dan Katz, director of C-store marketing for Noble Tennant Advertising and Marketing Service, a division of Noble Communications Co., which does research and marketing in the C-store market. Prior to joining Noble, Katz worked 14 years as executive vice president of franchise operations for the Stop-N-Go C-store chain.

"As the market matures it won't be easy to make the dollars. Just because you grow doesn't mean you grow profitably," says Kyle Krause, vice president of finance for West Des Moines, Iowa-based Krause Gentle Corp., which currently has 137 Kum & Go C-stores.

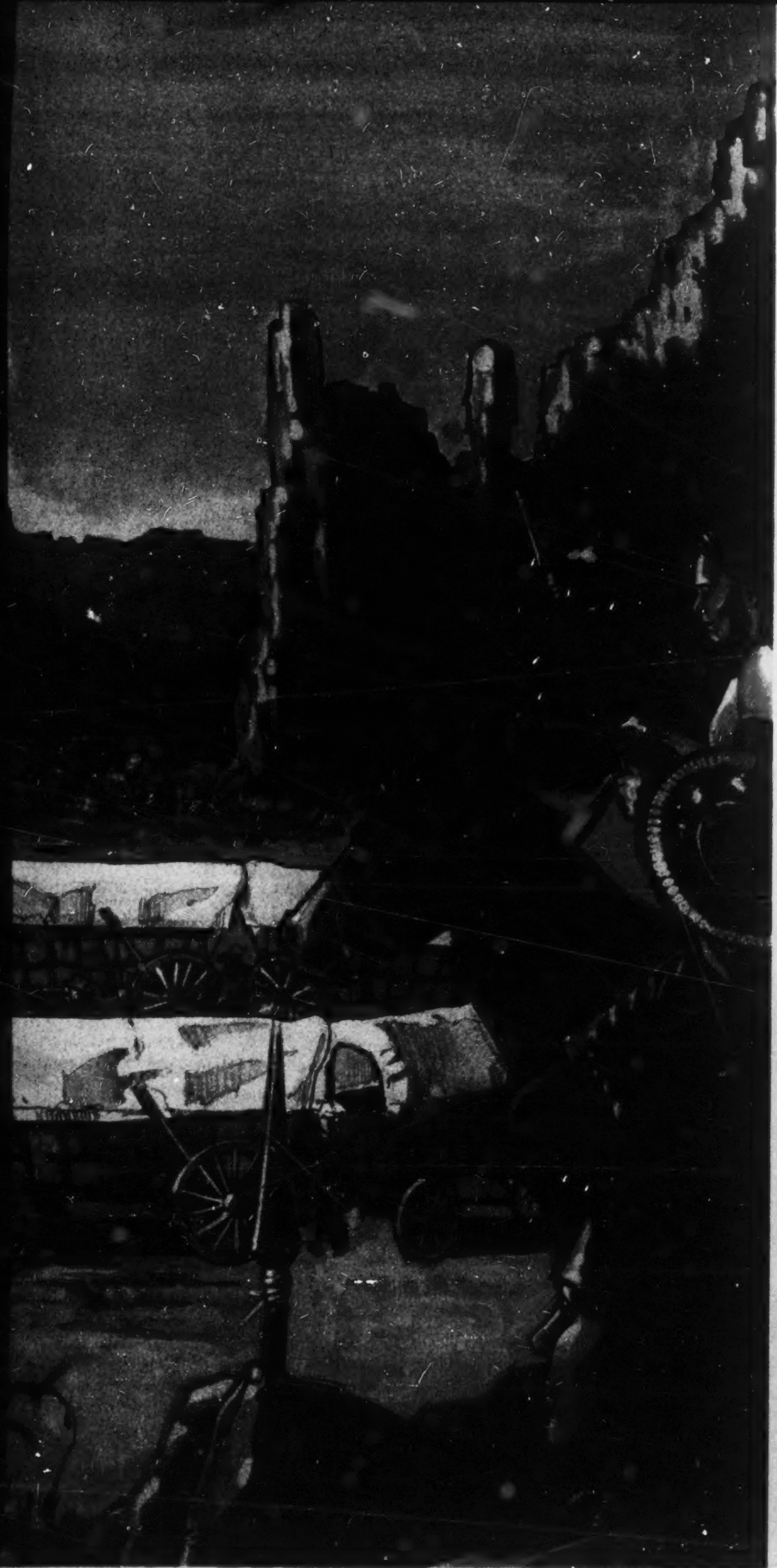
"It's getting tougher and tougher to make a profit in the C-store business," says one Southern jobber.

At the same time, other factors are making themselves felt. There are those who believe, for instance, that the customer base for convenience stores has shrunk—if you view a convenience store as an outlet which sells fewer goods for higher prices than are charged elsewhere, as opposed to a "mass marketer" which concentrates on high volume and lower prices.

John Roscoe, operator of a discount store chain in California and publisher of the *Dollars Per Day Survey*, is among those who see it this way. And, he believes, the trend is toward the mass marketer.

In his 18th annual survey, he says about

By Frank Victoria
Editor-in-Chief
and Peggy Smedley
Managing Editor



90% of the food and gasoline customer market is price conscious and belongs to mass marketers, leaving only 10% of the total market to convenience operations.

Oil marketer penetration

Industry data—including information gleaned from NPN telephone interviews along with data from NPN's annual Factbook questionnaires from oil companies and jobbers—reveal a remarkable, across-the-board thrust of petroleum oriented companies into the convenience store market.

The staff interviews covered a wide cross section of majors, jobbers—both large and small—traditional C-store chains and industry observers. The interview survey and Factbook questions were designed specifically to elicit information for this article and to generate data on industry trends rather than for extrapolating industry averages or total numbers on convenience stores.

Of the more than 500 marketers responding to the questionnaire and phone poll, about 40% reported that they operate C-stores—and roughly 140 of these said they have plans to increase the number of stores they operate by the end of this year and in 1990. (It is possible that more than 40% of the respondents have C-stores but did not fill out that portion of the questionnaire.)

The attitude of many of these jobbers is probably summed up nicely by Homer McGinnis, president of Pride of Texas Dist. Co.: "To survive in a metropolitan market you must grow, you cannot stand still."

Information from the jobbers and oil companies which provided specific numbers on their C-store expansion plans for this year and 1990 includes the following:

- A total of 61 marketers with less than 20 C-stores report plans to cumulatively add 96 stores through the end of 1989 and another 102 units in 1990.
- Jobbers who currently have between 21 and 50 stores—32 companies in our sampling—say they will cumulatively add a total of 107 C-stores this year and 100 more stores in 1990.
- Ten companies in the 51-100 store range plan to add 63 units in 1989 and another 61 in 1990.
- Six large marketers with between 101 and 200 units indicated they plan to add 55 stores among them this year and 72 in 1990.
- Two still larger marketer companies in

the 201 to 300-store range will add 80 stores between them in 1989 and 85 more in 1990.

This data does not include information from about 30 jobbers who could not reveal specific plans.

Details on the expansion plans of the major oil companies is sketchier, given the customary reluctance of several large firms to reveal specific growth numbers. However, data from 12 of the 21 major and second-tier companies polled by NPN shows those firms plan to add 603 units to their C-store stables in 1989 and another 643 stores in 1990. It should be noted that these figures do not include those from several very large oil firms which are known, empirically as it were, to be actively expanding in the C-store vineyards.

From another vantage point, the growth of the majors' involvement in C-stores is shown by NPN's figures on current C-store populations, a tabulation which is complete for all 21 major oil companies. The total number of major company stores now amounts to 17,825. This represents a jump of 966 stores from last year's total, 16,859 units, or an increase of 5.7% in total large company stores.

For the past several years the majors have been on a significant building program, but the traditional chains aren't sure whether they can keep up that pace. Southland speculates that the majors rate of entry into the C-store market won't be as dramatic in the future as it has been during the past few years.

Other sources paint a similar picture of growing oil marketer penetration of the C-store market. *Convenience Store News*' 1989 Industry Report, for instance, shows the number of C-stores increased from about 80,000 in 1987 to roughly 82,500 in 1988, and of this 2,500 increase, 2,000 were added by petroleum marketers. Last year, it noted that of 4,000 new units, 3,000 were established by petroleum companies. Even more revealing is that since 1984, the number of C-stores operated by petroleum marketers increased from 16,000 to 30,000, a nearly 90% increase, while those operated by traditional C-store chains increased at the much

Traditional giants like Southland and Circle K blazed the trail for others to follow in the C-store business, but now face heavy-hitting competition from petroleum companies. In addition, some are burdened with financial problems partly of their own making. Southland, for example, is selling off many of its outlets as part of an expensive privatization program, while Circle K, which has been on an acquisition binge, has put its entire operation up for sale.

NPN'S CONVENIENCE

COMPANY	HQ LOCATION	C-STORE NAME
Acme Petroleum Fuel Co., Inc.	Gastonia, NC	Handy Pantry Food Stores
American Petrofina, Inc.	Dallas, TX	Finamart
Amoco	Chicago, IL	Food Mart
Arkansas Valley Petroleum	Tulsa, OK	Git N Go
Arco Products Company	Los Angeles, CA	am/pm mini market
Ashland Oil, Inc.	Ashland, KY	Superamerica
Atlantic Refining & Marketing Corp.	Southeastern, PA	A-Plus Mini Market
Aztex Enterprises	Knoxville, TN	Aztex Fuel and Food Centers
Beacon Oil Co.	Hanford, CA	Beacon (Store Ultramart)
Berwick Bay	Morgan City, LA	Friend's/Delta Marts
Best Oil Co.	Pittsburgh, PA	Toot-N-Scoot
BP America, Inc.	Cleveland, OH	Sohio/BP/Gulf-Mart
Browning Oil, Co.	Bowling Green, KY	Shell Food Marts
Campbell Oil Co.	Massilon, OH	Speede Food
Cannon Oil Corp.	Dothan, AL	Cannon Oil Corp.
Casey's	Des Moines, IA	Casey's
Cenex	St. Paul, MN	Cenex C-stores/ Townmart
Center Independant Oil Co.	Smock, PA	Sweet Peas
Certified Oil Co.	Columbus, OH	Certified Mini Marts
Champlain Oil Co.	South Burlington, VT	Colonial Deli Mart
Chevron Corp.	San Francisco, CA	Food Marts
Circle K Corp.	Phoenix, AZ	Circle K Convenience Stores
Citgo Petroleum Corp.	Tulsa, OK	Citgo Quik Mart
The Coastal Corp.	Houston, TX	Coastal Mart/C Mart
Conoco, Inc.	Houston, TX	Conoco/Jet
Convenient Food Mart	Rosemont, IL	Convenient Food Mart
Convenient Petroleum Corp.	East Hartford, CT	Petro Pantry
Crown Central Petroleum Corp.	Baltimore, MD	Fast Fare/Zippy Mart
Crystal Flash Petroleum Corp.	Indianapolis, IN	CF Combo's
Cumberland Farms	Canton, MA	Cumberland Farms
DeBlois Oil Co.	Providence, RI	DB Mart
Diamond Shamrock R&M Co.	San Antonio, TX	Diamond Shamrock Corner Store
Drakes Refinery Stations Inc.	Lansing, MI	Drakes Refinery Stations, Inc.
Emro Marketing Co.	Springfield, OH	Speedway
Englefield Oil Co.	Newark, OH	Duchess Shoppe
Exxon Company, U.S.A.	Houston, TX	Exxon Shop
Farm & Home Oil Co.	Telford, PA	Farm & Home Corner Store
Fleetman Inc. dba Fuelman	Metairie, LA	Foodman
FKG Oil Co.	Belleville, IL	Motomart
Flying J Inc.	Brigham City, UT	Flying J
Foster Oil Co.	Richmond, MI	Sunrise Convenience Stores
Four Star Service Stations Inc.	Grand Rapids, MI	Four Star Service Stations & Stores
H.N. Funkhouser & Co.	Winchester, VA	Handy Mart
Gasco Gasoline, Inc.	Oxnard, CA	Desert Petroleum
General Oil Co.	Batesville, AR	General Quik Mart
Getty Petroleum	Plainview, NY	Getty Marts
Giant Industries, Inc.	Phoenix, AZ	Giant Food Stores
Gresham Petroleum Co.	Indianola, MS	Double Quick
Angus I. Hines, Inc.	Suffolk, VA	Sentry Food Marts

N/A—Precise figures not disclosed by company
N/C—No change
?—Plan to add C-stores, but exact number unknown

STORE SUMMARY

1987 TOTAL	1988 TOTAL	1989 CURRENT	1989 PROJECTED	ADDITIONS PROJECTED IN 1990	AVG. GASOLINE VOLUME PER STORE PER MONTH		SIZE SQ. FT.	
					MINI	FULL	MINI	FULL
N/A	N/A	50	55	5		N/A		N/A
115	150	157	182	40	23,931	81,534	800	1,500
800	1,000	1,000	N/A	N/A	N/A	N/A	800	1,600
11	12	13	15	2	N/A	50,000		2,400/3,000
N/C	782	782	770	50	N/A	200,000	1,600	2,500
457	500	525	600	?		120,000		3,400/4,400
254	270	270	280	10	127,500	116,000		1,600/2,000
N/A	N/A	36	39	3	125,000	110,000	800/900	1,800
104	120	109	114	10	122,600	122,600	600	1,600
43	39	40	43	3	30,000	190,000	400	2,800
12	13	13	14	?		100,000		N/A
N/A	620	651	701	60	148,500	122,800	1,000	1,500
6	7	7	8	2	75,000	85,000	900	2,000/2,800
20	21	22	25	5		100,000		2,300/3,300
18	18	17	18	2		73,529		1,500/2,000
N/A	N/A	732	?	40		N/A		2,500
115	155	225	255	35	40,000	55,000	800/1,500	1,600/2,400
N/A	N/A	4	6	2		75,000		N/A
3	7	16	20	10	N/A	N/A	900	2,000
45	47	50	53	2	35,000	45,000		2,400
3,750	3,896	3,936	3,996	100	N/A	N/A	350	1,200
3,507	4,097	4,677	4,700	?	100,000	38,000		2,600
14	15	15	17	?	100,000	150,000	900	1,800
N/A	900	850	?	?	51,377	49,338		2,000
469	466	477	527	50	109,990	109,990	400	1,200/1,600
1,345	1,450	N/A	N/A	?	N/A	N/A		3,000
5	7	11	14	2	110,000	85,000	500	1,600
519	532	N/C	542	12	140,000	40,000	500	2,400
N/A	N/A	24	24	2	80,000	90,000		N/A
N/A	1,200	1,075	N/A	?		50,000		2,000/3,000
4	7	11	15	4		60,000		2,200
510	529	617	657	40	93,000	93,000		1,200
12	12	14	17	4	40,000	40,000	800	
621	675	889	959	70		N/A		3,375
33	42	53	60	10		84,000		1,500/2,000
N/A	375	450	?	?	N/A	N/A		1,100
3	8	8	10	2	50,000	60,000		1,200
N/A	N/A	11	16	5		80,000		N/A
28	33	38	42	4		110,000	400	2,200/2,700
28	31	33	40	?		100,000		2,400
N/C	N/C	13	17	4	86,000	130,000		
11	11	10	11	?	70,000/350,000		1,000	
5	7	8	9	1		100,000		2,200/2,400
11	10	8	10	2	103,000	147,000		
35	35	33	N/C	?		50,000		1,400/3,000
300	300	378	435	50-70	N/A	N/A	600/1,000	2,000
14	15	21	31	10		200,000/250,000		2,000
23	24	26	26	2		25,000		2,400
24	28	30	33	?		N/A		1,700

→

slower rate of 47,000 to 52,500, about 12%.

There's nothing new about petroleum company involvement in the convenience store market. They moved into the market back in the '70s, with jobbers leading the way. But nowadays there seems to be an added spur driving marketers to build or buy new stores or to convert existing stations.

Jobbers mention the need for better—and more stable—returns on investment in property and facilities, higher margins compared to gasoline profits, relatively low manpower costs, among other reasons.

Also, in today's market, jobbers are being ambushed at every turn by escalating costs; in particular the high price of compliance with the Environmental Protection Agency's underground storage tank regs and financial requirements. Jobbers recognize the need for generating additional cash streams to cover that heavy cost overlay.

Troy, Mich., marketer R.H. Tod Butler of Mid-States Petroleum is among these. "Our primary reason for expanding and upgrading our C-stores now is to generate additional income to cover the added costs of operation such as UST upgrades, Stage II vapor recovery systems." Store upgrades can be tied into tank replacements and upgrades for economy purposes, he points out.

At the same time, many jobbers are under pressure to conform to widespread and expensive image improvement programs to which the majors and many large independent oil companies are committed. Although incentive rebates are provided, the money doesn't usually come near to what jobbers spend on these upgrades.

Consequently, jobbers are reexamining their operations, unloading marginal outlets and earmarking those with the greatest potential for a major infusion of funds to meet environmental requirements and to upgrade and modernize. Each of these improved locations will need to produce volume and profit to cover these investments as well as business lost from closed or sold units. In short, jobbers have to get as much bang for invested buck as they can—more than they ever have before—and C-stores are one means to that end.

Noble Communications' Katz says, "C-stores can be anything and everything." He explains that a C-store on a piece of property—such as a gasoline station—generates more customer traffic.

Krause concurs. He says adding more services, like a C-store, not only draws traffic, but it helps boost overall profits. "The dollars are tougher to come by these days in profits," he notes.

Another Ohio marketer explains that his C-stores are a good stabilizing factor in his marketing area. He says, "Margins are consistent in C-stores, unlike gasoline margins."

Mini to maxi!

Historically, petroleum company convenience outlets, particularly those operated by the majors, have tended to be the smaller (under 1,000-sq.ft.) island marketer or kiosk types—the so-called "mini" stores. The full-size (over 1,000-sq.ft.) format long ago was staked out by the traditional C-store industry.

Now, separately compiled tabulations from NPN Factbook questionnaires demonstrate that many marketers are scaling up the size of the C-stores they're building or acquiring. This data strongly suggests that marketers are dramatically shifting away from the under 1,000-sq.ft. mini outlets to the larger 1,000-plus sq.ft. stores—and usually much larger than that.

Specifically, of the 105 non-major responding petroleum firms which plan to expand their C-store operations, 83 say they are adding only full-size stores in the future. Only 22 of the reporting firms will add mini stores in 1989 and 1990.

The 83 marketers planning full-size store expansions indicate they will add 349 such units in 1989 and 289 more in 1990, for a total of 638 additional stores. That's an increase of almost 26% in the number of full-size stores operated by those firms. In contrast, the 22 firms that say they will add mini stores are looking at 49 store additions in 1989 and another 53 in 1990.

Among these reporting companies, then, the planned C-store expansion is weighted more than six to one in favor of the larger size C-store format.

As for the majors and semi-majors, the 11 companies which responded indicate they will be adding 229 full-size stores this year and 245 next year. As for mini units, the companies say they will add 200 in 1989 and 210 in 1990.

Why bigger...or smaller?

As marketers move up from the mini-store size to the full-size C-store category, some are plunging ahead to the next step in the evolutionary process: large stores to larger stores, with even a greater variety of product offerings.

NPN'S CONVENIENCE

COMPANY	HQ LOCATION	C-STORE NAME
Barney Holland Oil Co.	Ft. Worth, TX	Jack B. Quick, Inc.
Huck's Convenience Stores	Carmi, IL	Huck's Food Store
Hudson Oil Company	Tulsa, OK	Hudson
Hughes Energy, Inc.	Daytona Beach, FL	Sugarcreek
Hull Oil Co.	Panama City, FL	Jr. Food Mart (franchise)
Hunt Refining Co.	Tuscaloosa, AL	(leases stores)
Huntley Jiffy, Inc.	Orange Park, FL	Huntley-Jiffy Stores Inc.
J&L Oil, Inc.	Vernon Hills, IL	J&L Food Mart
Kelley Williamson Co.	Rockford, IL	(various)
Kent Distributors, Inc.	Midland, TX	Kent Kwik
Kimber Petroleum Corp.	Madison, NJ	Kwik Pik
Krause Gentle Corp.	West Des Moines, IA	Kum & Go
Kunz Oil Co.	Edina, MN	Peoples [illegible]
Kwik Shop, Inc.	Hutchinson, KS	Kwik Shop, Inc.
H.C. Lewis Oil Co.	Welch, WV	Kwik Serv Food Marts
The LYDEN Co.	Youngstown, OH	Fast Chek Food Marts Inc.
Mapco Petroleum, Inc.	Tulsa, OK	Delta Express
Martin Oil Marketing, Ltd.	Alsip, IL	Martin Mini Marts
McDowell Oil Service, Inc. Time Markets, Inc.	Milton, PA	Time Marketers, Inc.
McLeiser Oil, Inc.	Kalamazoo, MI	Food Port Marketing
Mid-Missouri Oil Co. dba Jiffy Stop	Kaiser, MO	Jiffy Stop
Mid-States Petroleum	Troy, MI	Mid Mart
Miller Enterprises, Inc. dba Handy Way Food Stores	Cresent City, FL	Handy Way Food Stores
Miller Oil, Co.	Norfolk, VA	Miller Mart
Mini Mart, Inc.	Casper, WY	Mini Mart, Inc.
Mobil Oil Corp.	New York, NY	Mobil Mart
Munro Petroleum & Terminal Corp.	Biloxi, MS	MP Food Stores
Musket Corp.	Oklahoma City, OK	Love's Country Stores
National C-Store	Houston, TX	Stop-N-Go
National Oil & Gas Inc.	Bluffton, IN	(various)
Neal, Inc.	San Antonio, TX	One Stop Food Stores
Nella Oil Co.	Auburn, CA	1 Stop Convenience Food Stores
Newell Oil Co., Inc.	Alpine, TX	Gro-cer-eze
Pal Oil Company, Inc.	Palmyra, NY	Palmart
Patterson Oil Co., Inc.	Torrington, CT	PATCO Handy Stop
PDQ Food Stores, Inc.	Madison, WI	PDQ Food Stores, Inc.
Pennzoil Products Co.	Houston, TX	Penna-mart
Petroleum Sales & Service	Buffalo, NY	Petro Mini Marts
Petrotex Marketing, Inc.	Midland, TX	Friends Convenience Stores
Phillips 66 Co.	Bartlesville, OK	Phillips 66
Piasa Motor Fuels Inc.	Alton, IL	Piasa Pantry
Pilot Oil Corp.	Knoxville, TN	Pilot Foodmarts
Pride Oil Co. Inc.	Columbus, MS	Pride Pantry
Pride Oil Co. Inc.	Knoxville, TN	Smoky Mountain Markets
Pride of Texas Dist. Co.	Arlington, TX	One-Stop/Sack N' Sack/Pride Foods
Private Brand Services, Inc.	Cadillac, MI	P.B.S. Party Store
Quality Oil Co. I, Ltd. Partnership	Winston-Salem, NC	Quality Mart
Quiktrip Corp.	Tulsa, OK	QuikTrip
Racetrac Petroleum, Inc.	Atlanta, GA	Racetrac Petroleum Inc./Multi-Store

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N/A—Precise figures not disclosed by company
N/C—No change
?—Plan to add C-stores, but exact number unknown

STORE SUMMARY

1987 TOTAL	1988 TOTAL	1989 CURRENT	1989 PROJECTED	ADDITIONS PROJECTED IN 1990	AVG. GASOLINE VOLUME PER STORE PER MONTH		SIZE SQ. FT.	
					MINI	FULL	MINI	FULL
—0—	3	4	4	?	15,000	80,000		1,500/2,500
N/A	90	95	105	10		40,000		
10	11	11	16	5	85,000	—0—	400/1,000	
6	12	14	17	3		40,000		
3	4	5	7	3	80,000	35,000	1,000	2,400
2	2	2	4	?		150,000		
319	323	320	330	?		50,000		
22	26	31	36	4	70,000	90,000		2,000
17	19	22	22	?		150,000		2,500
N/A	N/A	16	20	3		60,000		
N/A	N/A	3	6	3		140,000		
N/A	N/A	137	147	15	25,000	37,000		
15	N/C	N/C	N/C	1	80,000	100,000	1,000	2,700/4,500
N/A	N/A	210	213	5		45,000		
N/A	N/A	4	8	3		50,000		
43	45	54	N/C	10		N/A		1,400
295	265	310	305	?		80,000		1,800
41	41	43	45	5	140,000*	140,000*		2,000
28	28	28	29	1		75,000		2,500
3	2	2	4	2		45,000		2,000/3,500
6	7	6	N/C	?	50,000	70,000		1,200
11	18	32	36	11	130,000	130,000	800	2,500
144	141	137	146	10	N/A	N/A		2,400
N/A	N/A	21	N/A	N/A		60,000		N/A
115	116	117	120	10		40,000		2,400
800	800	800	N/C	?	N/A	N/A	600	N/A
N/A	N/A	41	45	?	40,000	60,000	1,000	1,200/1,400
N/A	100	119	129	?		N/A		1,800/4,000
1,169	1,200	1,141	N/C	N/C		N/A		2,400/3,000
18	24	29	34	5	25,000	75,000		N/A
30	30	28	30	2	25,000	125,000	500	3,500
19	21	25	37	5	167,000	167,000		2,400
N/A	N/A	1	1	0		50,000		N/A
2	6	8	11	3	80,000	60,000	1,000	2,200
N/A	N/A	6	8	3	68,000	90,800		N/A
N/A	N/A	105	113	12		N/A		N/A
N/A	N/A	4	5	3		95,000		N/A
N/A	N/A	4	5	2	100,000		N/A	
N/A	N/A	18	19	1	70,000	70,000	N/A	N/A
113	136	150	196	43	180,000	140,000	800	
N/A	N/A	6	9	2	45,000	65,000	N/A	N/A
N/A	115	72	80	8		96,000		2,200/2,500
N/A	N/A	7	8	1		38,000		N/A
N/A	N/A	10	10	0		N/A		N/A
12	21	27	30	3	40,000	45,000	900	2,600
1	N/C	1	1	0		120,000		N/A
23	24	25	27	?			200	2,200
230	252	256	296	40		N/A		3,200
N/A	N/A	268	318	50		N/A		N/A

➔

Ashland Oil execs, for example, say their SuperAmerica stores are generally larger than the industry pattern and the newer ground-up stores range from a whopping 3,900 to 4,600-sq.ft. Thus, they're geared up to handle greater varieties of merchandise than the 2,000 to 2,500-sq.ft. stores which are the industry norm. All have broad mixes of foods and services tailored as much as possible to the individual needs of neighborhoods.

"That's our basic idea," says Ashland marketing vice president Jeff Howard, "make the stores and their shelves match the neighborhood needs."

Even large independent Mapco Petroleum is expanding into larger C-stores (3,600-sq.ft.) because, management says, the company is adding even more fast food items to its operations and it needs more space to make this happen.

Denny Miller, vice president, gasoline operations for Crescent City, Fla.-based Miller Enterprises, reports that a new company store under construction will be 25% (2,950-sq.ft.) larger than the company's traditional 2,400-sq.ft. This expansion was designed to accommodate additional fast food items, Miller points out.

While many companies are expanding in size, other marketers are sticking with the smaller or mini units that have been characteristic of many petroleum operations. The island marketer format, after all, has proven quite successful in conjunction with high-volume gasoline outlets.

Although most of its stores (500-plus) are currently full-size units, Crown Central is now emphasizing expansion of its 650-sq.ft. multi-pump Express Mart island marketers. Crown Central plans to add 10 of these units this year and another 10 next year, says Joe Candella, senior vice president of marketing for Baltimore-based Crown Central Petroleum Corp. The Express Marts are designed for high-volume locations averaging over 140,000-gal./mo. In contrast the company's more traditional 2,400-sq.ft. units average 40,000-gal./mo. Candella notes that the smaller units can handle 60% of the product lines carried by the larger units.

Mobil Oil views the C-store market similarly. Company officials say having C-stores which are typically diminutive, i.e. 600-sq.ft., has proven "adequate for our purposes," adding that the function the company has for its Mobil Marts is "to satisfy impulse purchases for individually-sized snack items, not large packages."

Expansion of BP America's C-store network will be in the direction of 1,000-sq.ft. mini-stores, according to Hugh Hanna, senior vice president of retail marketing for the Cleveland-based firm. Hanna says that 90% of the newer or converted stores will be in that size range, most of them direct company operations.

"The smaller units give us better control of operating costs," says Hanna, "with lower stocking needs, faster inventory turns and reduced manpower costs." Food service is not being considered, either, he says, since

NPN'S CONVENIENCE

COMPANY	HQ LOCATION	C-STORE NAME
Reco Petroleum, Inc.	Reading, PA	Mr. Food Stores
Red Had Oil Co., Inc.	Richmond, KY	Redi-Mart
Reinhardt Corp.	Wes Oneota, NY	Busy Bee Food Stores
River Oil Company	Memphis, TN	(various)
Robinson Oil Co., Inc.	San Jose, CA	Mrs. Robbie's Foodstore/ Mrs. Robbie's Snackspot
Royster Oil Co., Inc.	Shelby, NC	RoCo Food Stores
Russell Petroleum Corp.	Montgomery, AL	KwikShop Food Stores
Sahara Oil Co., Inc.	Phoenix, AZ	Rebel Quik Mart
SATCO	Portland, ME	SATCO
SCASCO	Winsted, CT	(various)
Schaeffer Oil Inc.	Winner, SD	"Lil Feller"
Shay Oil Co., Inc.	Yuma, AZ	Shay's Mart
Shell Oil Company	Houston, TX	Shell Food Mart
SICO Co.	Mount Joy, PA	Sicoserve
Sing Oil Co.	Thomasville, GA	Sing Food Stores
Southern Oil Co., Inc.	Suffolk, VA	Southern Food Stores
Southland	Dallas, TX	7-Eleven
The Spencer Co's., Inc.	Huntsville, AL	Minit Man
Stevens Oil Co.	Huntsville, AL	Chevron Food Marts
Sugarcreek Corp.	Rochester, NY	Sugarcreek Stores
Sun Refining & Marketing Co.	Philadelphia, PA	Stop-N-Go
Sunshine Jr. Stores Inc.	Panama City, FL	Jr. Food Store
Taylor Oil Co.	Winston-Salem, NC	Etna Food Marts
Texaco, Inc.	Houston, TX	Food Mart
Thornhill Oil Co., Inc.	Fort Wayne, IN	Amoco Food Shops
Thornton Oil Corp.	Louisville, KY	Thornton Gas & Food Mart
Time Saver Stores Inc.	New Orleans, LA	Time Saver Stores Inc.
Tooley Oil Co.	Sacramento, CA	Shell Food Marts
Total Petroleum, Inc.	Denver, CO	Total Mart/V Mart
Transit Oil Co.	Louisville, KY	Transit
Ultra Power Corp.	Monticello, NY	Ultra Mart
United Refining Co.	Warren, PA	Kwik Fill
UNOCAL Corp.	Los Angeles, CA	Self Serve Marts
Vista Marketing Group Ltd.	Rockford, IL	Vista
Wake Up Oil Co., Inc.	Indianapolis, IN	Mini Snack Shop
Warelubco, Inc.	Jacksonville, IL	Wareco Country Stores
Warren Equities, Inc.	New York, NY	Xtra Mart
Welsh Oil, Inc.	Merriville, IN	(various names)
Western Marketing, Inc.	Abilene, TX	Wes-T-Go, Inc.
Westgate Oil Co.	Muskegon, MI	WESCO/ Good Neighbor Convenience
A.T. Williams Oil Co.	Winston-Salem, NC	Wilco Food Marts
J.H. Williams Oil Co., Inc.	Tampa, FL	76 Mini Marts, Inc.
The Wills Group, Inc.	LaPlata, MD	Dash In Food Stores Inc.
Wooten Oil Company	Goldsboro, NC	Kwik Mart
World Oil Co.	Southgate, CA	Swift Stop

N/A—Precise figures not disclosed by company
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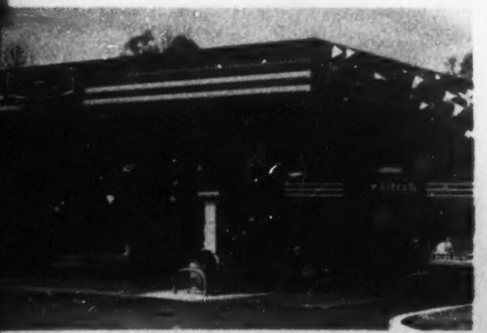
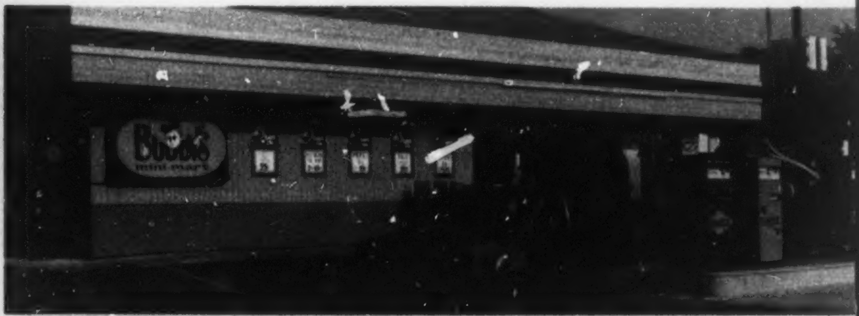




Jobber firms like Pipeline Oil Co., Jackson, Mich., and Pilot Oil Corp., Knoxville, Tenn., have been the leaders among petroleum companies in C-store innovations. Pipeline, for example, with it's Buddy's Mini-Marts, is typical of those marketers which are moving to fill in the marketing gap in small rural areas created by the pullouts by larger companies.

STORE SUMMARY

1987 OTAL	1988 TOTAL	1989 CURRENT	1989 PROJECTED	ADDITIONS PROJECTED IN 1990	AVG. GASOLINE VOLUME PER STORE PER MONTH		SIZE SQ. FT.	
					MINI	FULL	MINI	FULL
N/A	N/A	40	43	10	65,000	45,000	N/A	N/A
N/A	N/A	8	8	2		35,000		N/A
N/A	26	27	35	?	40,000	45,000	N/A	2,500
2	3	3	3	2		40,000		1,500
7	7	7	9	?		N/A		N/A
N/A	19	21	23	2		30,000		2,400
15	17	17	17	2	75,000	75,000	1,400	3,000
N/A	N/A	6	8	?		N/A		N/A
25	25	26	28	?	25,000	50,000	N/A	N/A
N/A	N/A	10	12	1	50,000	65,000	N/A	N/A
3	4	6	N/C	?		N/A		2,500
N/A	N/A	10	13	2		100,000		N/A
N/A	1,100	1,164	N/A	N/A	158,000	112,000	800	1,000/2,600
N/A		7	9	2	93,000	90,000	N/A	N/A
N/A	52	55	59	4	73,500	95,000	1,000	2,700
4	5	5	6	1		65,000		N/A
8,250	7,233	7,097	6,950	50	N/A	N/A	300/1,600	2,400
14	14	16	16	0	50,000	80,000	800	1,200
20	25	30	32	4	N/A	N/A	800/900	1,200
N/A	N/A	100	110	10	70,000	70,000	N/A	2,000/2,500
N/A	485	620	N/C	?	N/A	N/A	300	2,000/2,400
306	309	315	340	40		35,000		1,800/3,000
56	56	53	56	3	120,000	120,000	900	2,400
900	900	1,705	1,813	105	130,000	148,000	1,000	1,800
8	11	12	N/C	?		105,000		1,000
N/A	N/A	75	85	7		N/A		N/A
142	139	139	140	2		30,000		3,200
8	7	8	9	?	194,000		200/800	
430	470	509	534	25	135,000	135,000	800	1,500
7	7	7	7	0	60,000		800	
3	4	4	9	8		N/A		1,500
110	N/C	N/C	120	24	N/A	N/A	700	1,500
2,500	N/C	N/C	N/A	N/A	N/A	N/A	500/1,000	2,200
N/A	N/A	4	6	1	100,000	140,000	N/A	N/A
1	5	5	?	6	100,000	75,000	280	2,500
N/A		72	?	5	100,000	100,000	900	2,400/2,600
N/A	87	101	112	13	96,000	74,000	1,000	1,500
N/A	27	27	28	?		N/A		2,400
N/A	N/A	11	11	2		65,000		N/A
N/A	28	28	N/C	?	125,000	125,000	1,000	2,000
78	83	88	95	7		100,000	800	2,400
6	6	6	8	2	100,000	150,000	N/A	1,400
9	32	32	38	15		65,000		2,400
N/A	N/A	23	25	1-2	52,000	70,000	N/A	N/A
N/A	N/A	33	N/C	?		N/A		N/A

it adds another dimension in terms of labor costs.

Paul Howell, coordinator for Food Marts and company-ops for Chevron U.S.A., says that 1,200-sq.ft., with the store underneath the canopy, is optimal for an island-type facility. "That's what we're building now," says Howell. "If you get bigger with a store, you start restricting traffic flow and what have you."

For some marketers, size is not an either/or proposition. These marketers feel local market situation, traffic patterns, etc., should determine a C-stores size and offerings.

"The local market dictates the size and type of stores we put in a location," says a Midwest jobber.

Dovetail offerings

Local market demand is a prime consideration for the more astute marketer in determining both size of store and its product mix.

"In the C-store market you can't broad brush it. You have to study your market and judge each C-store individually. Area and location play a role for the product mix in the C-store. You have to know your market and what your customers want," explains Englefield.

He says that one advantage of being a small marketer is that you're more flexible in terms of each location. The largest C-store he has is 2,000-sq.ft. Englefield offers fountain drinks, on-site deli preparation, hot dogs, nachos and popcorn. The company is not big on other fast food items.

Katz adds that location can invariably determine what a marketer needs to offer consumers. He says, "Different locations might require different offerings. Keep it simple. Don't make it labor intensive."

Terry Crees, general manager, service station division, Giant Food Stores Inc., Phoenix, says marketers should thoroughly evaluate each market they plan to enter. "If we're in an area where the gasoline volumes tend to be in the 200,000 to 300,000-gal./mo. range, we're going more for the gasoline lines and we'll put in a smaller store," he says. "But if you're in a good, strong C-store area, obviously you're going to build a bigger store."

Some marketers, including some heavyweight oil companies, are also looking at market opportunities in areas that are being abandoned by many of the majors.

Don Olson, retail development manager for Cenex, a major farm co-op/petroleum marketer based in St. Paul, Minn., says the firm is expanding mostly in small towns with populations of 10,000 or less.

Cenex sees a growing attrition in the traditional services small town residents used to enjoy. For example, Olson says, many of the local restaurants can no longer survive economically in that environment. In effect, Cenex sees the opportunity to reestablish the "general store" concept in those smaller communities.

Unlike many majors, which are concentrating on major metropolitan areas, BP America figures it can do well in communities of 30,000-50,000 people "and smaller communities too," says Hugh Hanna. "The opportunities there are great."

Costs play a big role, too, in marketer decisions on locating their C-store properties. Marketers say, for example, that a store that goes for a million-plus in central Denver can be built in a small, rural area not too far away for half that cost.

Market perils

Whatever the reasons jobbers' growing involvement with C-stores, a caution light should be flashing somewhere. The abundance of C-stores in many markets is reflected in industry statistics. Convenience store sales growth is slowing and margins are down. Meanwhile, the cost of building and operating a C-store continues to increase.

Fred Reid, vice president of operations, The Spencer Co.'s, Inc. says one huge deterrent to expansion is the initial investment. He says whereas a C-store was a $250,000 proposition in the mid-'80s, the cost today amounts to $500,000 and more and that doesn't even include the property.

In its *1989 State of the Convenience Store Industry* report, the National Assn. of Convenience Stores (NACS) shows total national convenience store sales increased by only 2.7%, from $59.6-billion in 1987 to $61.2-billion in 1988.

That's a sharp drop from the 10.7% increase registered in 1987 and even lower than the relatively small 4.9% increase of 1986. It's not even in the same ball park as the 12.7% increase back in 1985.

Despite the sales increase, small though it is, the NACS report shows total industry pre-tax profits dropped more than 11%, from $1,312-million in 1987 to $1,163-million in 1988. Average store profits fell from $19,200 in 1987 to $16,800 in 1988.

Even though the average gross profit margin increased from 24.4% to 26.2% of sales, the average pre-tax profit in 1988 fell to 1.9% of sales compared to 2.2% in 1987. A major reason is that operating expenses increased from 18.2% of sales in 1987 to 19.9% of sales. Also, "other expenses"

(Continued on page 49)

Survival Keeps Getting Tougher In Competitive C-Store Market

Some of the most poignant and perceptive comments on the market forces influencing the convenience store industry come from John Roscoe, generally considered a skilled observer and analyst of the market. In addition to publishing his *Dollars Per Day Survey*, Roscoe is a former convenience store operator who now runs a string of discount food and liquor stores in California.

Many of Roscoe's opinions are founded on the premise that the simple and fundamental definition of a C-store is that it is a store which "charges higher prices than charged by mass marketers." It sells less goods for more money—just the opposite of the mass marketer, which sells more goods for less money. (Roscoe recalls an industry meeting where John Thompson, son of the man who founded Southland, said, "My father's contribution to this business was that he invented high prices.")

That's the key determining factor, Roscoe says, not a store's size, even though the industry consistently uses size to identify C-stores. "Store size is the result of the function being performed," he writes in his latest (the 18th annual) *Dollars Per Day Survey*. "It is not a distinguishing characteristic."

Some C-store operators lose sight of this, or never really fathom it, Roscoe writes; they just "don't understand the dynamics of a convenience store operation."

Roscoe goes on to say that the trend in retailing continues for the most part to be toward more efficiency—that is, selling more goods for less money. The mass market, he says, is price sensitive and represents about 90% of demand for most items today; the convenience segment, which fills the time and place function of retailing, represents only the remaining 10%.

"Years ago," Roscoe says, "the idea was that there were a lot of people who believed their time was worth more than their money." These were the primary customers for convenience stores. However, the vast majority of customers now, he says, consider their money to be at least as important as their time, if not more so.

Other factors compound the problem. Roscoe says, for instance, that one of the worse things about convenience stores is that they buy badly, paying a high price for the goods they sell. "When they talk about getting a 35% margin, they're talking about getting that on top of paying almost retail for their goods themselves."

That makes it difficult to compete against the mass market operator. "The mass market continues to get more efficient and, unfortunately, the convenience market gets more inefficient because the volume of their stores gets smaller, particularly if you adjust for inflation."

Everything is changing in the market, he says, but there are a lot of people out there doing the same things they did before.

These and other market forces will make it difficult for any convenience store operator to do well, Roscoe says, but the larger, spread out chains will have the toughest go of it.

"I think the cost of running a multi-state, enlarged convenience retail chain—the cost of administration and supervision—is too great for the productivity or the return per unit."

The more stores they operate, he says, the more cost they incur per unit for supervision and administration. The price of control gets higher. "That's not the way it's supposed to be; it's supposed to get lower, but it doesn't."

The effects of this are showing. In this year's Survey, Roscoe gives some less than flattering appraisals of some of the top traditional C-store chains. In brief, they've got trouble. The only real compliment he had was for Casey's: "I visited them in May and was impressed with the way they had met their market. Most operators discount them. If you want to be in the convenience store business, you should study Casey's."

He's not exactly overwhelmed with the oil companies either. His evaluation: "Oil companies do not employ merchants or philosophers. You probably cannot awaken sleeping giants. Let us hope that they spend their millions on upgrading and remodeling programs without figuring out how to market."

Roscoe thinks the oil jobber probably has the best chance of successfully operating a C-store. The jobber knows his market well, he says, and has a good idea of the best locations for a C-store and can adapt the store to meet the needs of a specific locale. Jobbers who operate fewer stores in a smaller marketing area don't have the same high administrative and control problems plaguing the big chains.

A rural outlet where competition is not especially intense would be good. That's particularly true if the jobber owned the location and was simply converting a gasoline-only or traditional station to a C-store/pumper combination because property costs comprise such a large part of the rising price of installing a new unit.

But if a jobber has a good, valuable piece of property, is there a better use for it? Would the money he could sell it for plus the cost of putting up a C-store earn a better return somewhere else? These are the issues jobbers need to come to terms with. In short, the basic, most important question—one which many jobbers are apparently already asking themselves—is: "Do I really want to be in this business?"

If they opt to stick around, they should understand the kind of business they want to operate and incorporate practices that set them apart from others. Roscoe says, for instance, jobbers might operate as "merchants"—develop a good base of repeat customers, have return policies, use good, well-trained employees, have some low-cost items, understand and meet the specific needs of the clientele in the area, etc. But don't use giveaways and gimmicks, he cautions. That raises costs.

Roscoe also warns about fast food. "When you're talking fast food, you're talking Burger King, McDonalds, Kentucky Fried Chicken. The C-store might get some of that business but not a lot."

Roscoe says he's amazed when he reads about a C-store chain that's putting a lot of money and effort in fast foods and "'by 1992 expects to be getting 12% of their business from fast foods.' They're doing all they're doing to get fast food business and all it will be is 12% of their business?"

Besides, he says, it's labor intensive, and that raises costs. "You've got to keep costs down," he says. "Low cost units are the most successful."

He goes back to Casey's as an example. "Casey's does good a job," Roscoe says. "He keeps it simple. It has some fast food, like pizza. He may have made a mistake with chicken. [Editor's note: Casey's recently eliminated that item]. He knows his business. Its a minimal operation with relatively low cost."

(Continued from page 44)

chopped about 2.3% out of store operating profits last year, compared to 1.3% in 1987. NACS notes that these "other expenses" including interest expense. may have increased so much because of merger, acquisition and leverage buyout activity.

Of particular interest to jobbers adding new stores is that the investment for doing so is higher. The price tag for an urban store, says NACS, went from $682,800 in 1987 to $773,300 in 1988. The cost for opening a rural outlet also increased, but not nearly as much, from $517,400 to $532,700.

Nothing new in this. The trend for investment in a new store has consistently been in a northerly direction. Back in 1984, the price for an urban store was $496,200; for a rural site, $356,200.

Land costs comprised a major portion of those costs. For an urban store in 1988, the real estate cost was $350,500, nearly half of the total investment. For a rural location, it was $148,000, about one-third of the total.

The gasoline end of the C-store business looked good. Interestingly, in fact, most of the comparatively small increase in overall C-store sales last year came from gasoline sales, NACS reports.

Gasoline sales in 1988 comprised 39% of total C-store sales compared to 34% in 1987. These sales totaled $22-billion last year, 7.3% higher than in 1987. That compares to a 4.7% increase in gasoline sales recorded by gasoline service stations generally. NACS also points out that since the percentage of C-stores selling gasoline was about the same

QuikTrip
QuikTrip

Products You Can Trust

The smaller "island marketer" type of C-store—generally those under 1,000-sq.ft. in size—has been popular among those major companies like Texaco, which want to stress gasoline sales. In today's market, however, there is a growing movement, especially among petroleum marketers, to full-size C-store locations such as Quiktrip's 3,200-sq.ft. units, which promote greater variety and high-margin fast food sales.

as in 1988 and gasoline prices last year were fairly stable, the increase can be attributed to greater volume coming from new and existing stores selling gasoline.

Average monthly gallonage per store in 1988 also increased to 51,000-gal. from 47,000 in 1987. Average dollar gasoline sales per store last year were $539,000, a 5.9% increase from the $509,000 in 1987. And the average margin on gasoline also improved, from 9.1¢/gal. in 1987 to 10.8¢/gal. in 1988.

Figures from the *Convenience Store News* 1989 industry report indicates gasoline sales played an even greater role in C-store sales. CSN says gasoline sales comprised 49.3% of total C-store sales—$40.7-billion in 1988 compared to $32.3-billion in 1987. The differences between statistics shown in the NACS and CSN annual reports can be accounted for by the fact that they are derived from differing sampling bases. The NACS study excludes the under 1,000-sq.ft. mini-mart operations, while CSN includes that

C-Stores Must Offer More, Meet Specific Market Needs

It's no secret that for years the traditional chains have built, dominated and controlled the fast-growing convenience store business. Today, however, the petroleum industry is aggressively staking out this territory with even larger and more well-stocked C-stores. This influx of petroleum firms into the C-store market is changing the face of the industry in both its product offerings and services.

Many industry observers say the trick to maintaining a profitable C-store in the '90s is tailoring it to that specific market.

Dan Katz, director of C-store marketing for Noble Tennant Advertising and Marketing Service, says the C-store of tomorrow, "will require different offerings for different neighborhoods. Catering your C-store to a specific community and knowing who your customer is will help increase profits both inside and out," says Katz.

With their abundant financial resources, many petroleum companies are increasing the size of their C-stores to make room for expansion into fast food operations, including deli bars and other self service items.

As noted in the main story, C-store outlets—particularly those operated by the majors—have historically been under 1,000-sq.ft., while the larger full-size (over 1,000-sq.ft.) units were owned by the traditional C-store industry. However, discussions with several petroleum firms reveal that today's marketplace philosophy appears to be suggesting that bigger is better.

Even some traditional chains are expanding store size. Southland, for instance, says its new prototypes are 3,000-sq.ft. Officials say this will give the chain larger working areas and "help in expanding its concept of convenience and service."

Marketers are expanding their C-store units to make room for a new variety of foods and other offerings, which includes more working space to provide these services. Providing a greater mix of food means marketers must either open or expand the size of their delis and other fast food bars.

Besides opening up more space for fast food operations, many marketers also are adding larger cold storage areas and bigger walk-in freezers. Observers also foresee larger C-stores to accommodate larger freezer sections designed for the fast-growing microwaveable product lines.

Other oil companies are making more room for videotape rentals, lottery tickets and ATMs because credit card transactions are expected to increase with brand loyalty, says one West Coast marketer.

Ashland marketing vice president, Jeff Howard, says Ashland wants to make room for more merchandise and in pressing these goals it has been adding more deli sandwiches and fast-food items, videotape rentals, ATMs and even in-store pharmacies to its locations. Ashland Oil's SuperAmerica stores are basically larger than its oil company competitors and even many of the traditional C-store chains. SuperAmerica stores range in size from 3,900 to 4,600-sq.ft, while the industry norm has been 2,000 to 2,500-sq.ft.

Jim Nickerson, director of operations for Morgan City, La.-based Berwick Bay sees credit card transactions playing an even greater role in the future. Shell, Texaco and Conoco-branded Berwick accrues as much as 55% of its gasoline volume via customer credit. And, he adds, brand allegiance is a benefit of credit card sales and will be even more so as the C-store industry expands.

Another Midwest marketer is expanding his C-stores to open up more space for on-site deli preparations, fast food bars (fried chicken, hot dogs, nachos, yogurt machines, fountain drinks, etc.), larger cold storage areas (cold juice, soda pop, ice cream, etc.) and bigger walk-in freezers. Industry observers also foresee larger C-stores in order to accommodate larger freezer sections designed to store microwaveable products.

Doak Neal, president of Neal, Inc., San Antonio, Texas, says food service is becoming a marketwide force within the C-store realm. He says the trend is toward more expanded delis offering a mixture of deli delights including meats and cheeses.

Paul Howell, coordinator of food marts and company-ops for Chevron, says fast food is the item that's becoming most prominent now in convenience marketing. It's the new "niche" in the C-store business. "From a gasoline marketer's standpoint, we're not into food service as much as Arco, for example, primarily due to restrictions on our store sizes," Howell says. "You've got to have room to prepare food, whether it's pizza or hot dogs. But we're looking closely at it and we'll see where the market leads."

Howell thinks some oil companies, Chevron included, might start looking at fast food from another perspective. "We've always thought in the past that gasoline sells food and I think it does for the most part," he says. "But there are some locations where you have to consider the food first and be aware of what your competition is doing there. I'm sure it can work both ways. There are a lot of people who stop at Arco to buy a cheeseburger first, and then fill up, rather than the other way around. If there's a changing trend, I think that's it, that the roles are being reversed a little bit. But it's going to take some time to change the thinking of gasoline marketers."

Though the trend is toward fast food operations, Homer McGinnis, president of Pride of Texas Dist. Co., in Arlington, cautions against expansion into food service. He says fast food is "a different business altogether" with its own set of problems.

Kyle Krause, vice president of finance for West Des Moines, Iowa-based Krause Gentle Corp., which currently has 137 Kum & Go C-stores, concurs. Krause says his company is building larger C-stores (2,400-sq.ft.) to make room for more fast food operations and cold storage areas.

SOHIO
Car Wash
Food Mart
899
909
1119
SOHIO

Major oil companies such as Amoco, Sohio (BP America) and Conoco—after watching from the sidelines for many years—are now moving aggressively to expand their share of the C-store/gasoline market. The majors have a clear edge over many C-store firms with the prime retail sites they control, plus the resources they can pour into building new sites or converting existing stations.

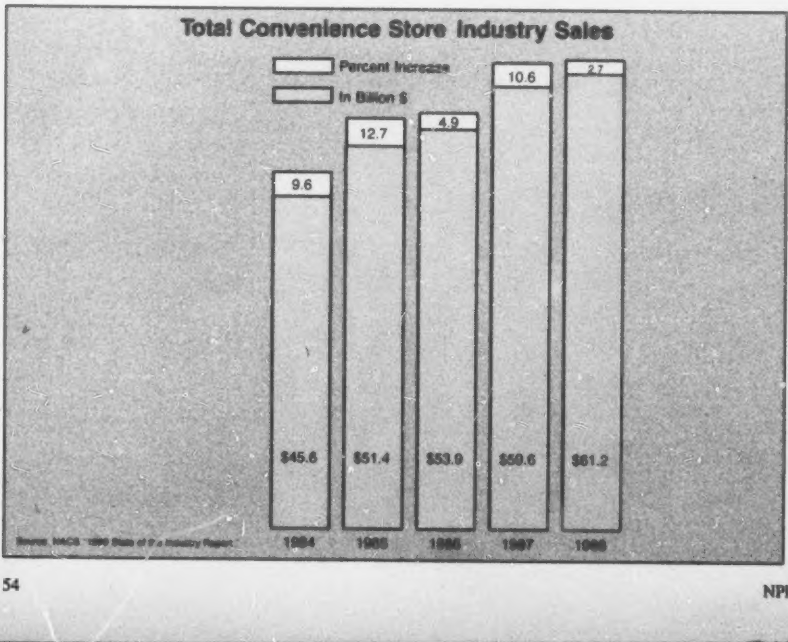
segment of the market. This could explain why, for example, CSN's industry count amounts to 82,500 stores, while NACS pegs the market at 69,200 units.

The CSN report shows, as would be expected, that far more petroleum marketer outlets pump gasoline (96%) than traditional outlets (63%) and do better at it. Average gallonage pumped among petroleum marketers last year was 844,000, compared to 520,700 for traditional operators. Petroleum marketers' gross margin on gasoline was 11%; for traditionals, 9%.

Figures on in-store merchandise sales were quite revealing. The average annual merchandise sales of a traditional store in 1988 totaled $550,000 compared to the $429,000 for those of a petroleum marketer. However, the traditional store is virtually the same as the previous year, but that of the petroleum marketer was up $410,000 in 1987.

Plight of the chains

These statistics are more than just numbers for most C-store chains—the figures reflect at least part of the reason why some of them are feeling the pinch.



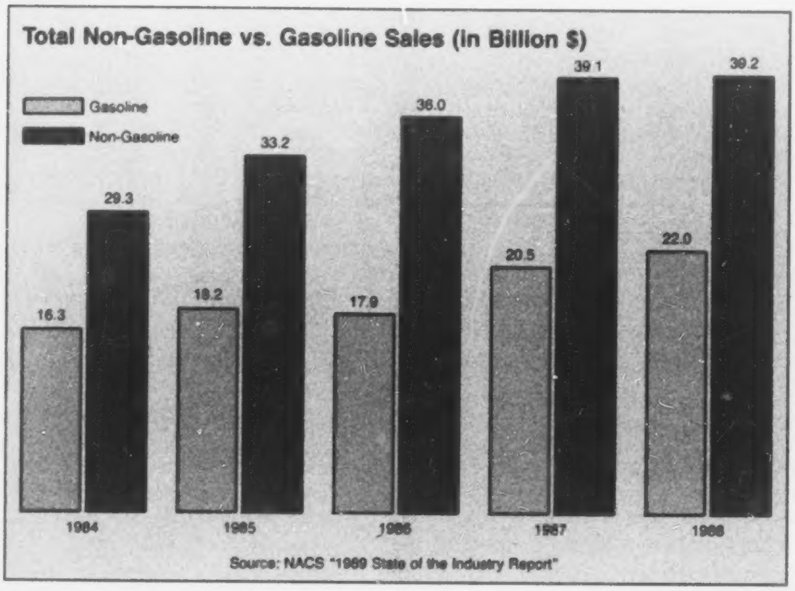
Source: NACS '1989 State of the Industry Report'

Southland, for example, is struggling with a $4-billion debt after the Thompson family took the company private in 1987. The cash squeeze must make it hard to find money to purchase good locations or adequately maintain facilities they currently operate.

In addition to selling off stores and other restructuring moves, Southland will also auction off its remaining 50% share of Citgo. Southland bought the company from Occidental Petroleum Corp. some time back, then several years ago sold a 50% interest in it to the Venezuelan government oil company. The remaining 50%, say some Wall Streeters, could go for about $700-million.

Meanwhile, Circle K officially put out the "For Sale" sign several months ago. The company isn't exactly teetering on the brink of financial ruin—it's the third biggest chain and markets about 1-billion gal of gasoline annually in addition to its groceries and fast foods.

Wasserstein, Perella & Co., the firm



Source: NACS "1989 State of the Industry Report"

retained by Circle K to help explore a possible restructuring, says "dozens" of inquiries have come in. but many industry people are taking that with a grain of salt. Ironically, the sheer size of the company is probably working against it—4,700 stores is a big bite to chew. The only parties with pockets big enough to take the whole package are the oil companies and although they are interested in acquiring outlets, they seem to be zeroing in on smaller chains in markets that dovetail nicely into their operations.

Smart money is on a leveraged buyout by Circle K's CEO, Karl Eller, who owns about 7% of the company and is generally credited with reviving it, and American Financial Corp., which owns about 34% of the company.

Crown Central's Candella believes oil companies have a great advantage in that they own their own properties by and large. "C-store companies, many of them are leveraged to the hilt, with too few owned properties and too many stores tied up in sales/lease-back deals."

What happens here, explains Candella, is that a large C-store chain will buy a batch of stores then sell the properties to an investor on a lease-back arrangement to raise capital for store remodeling, etc. "But this means they can't sell those properties," he says.

Pros and cons

There's a continuing debate over which end of the C-store spectrum—traditional companies or the petroleum firms—are better equipped to meet the future needs of the marketplace.

Some observers, for instance, believe that C-store firms don't have the street-wise experience to market gasoline in competition with petroleum firms.

"It appears that traditional C-store's gasoline units are not keeping pace with the gasoline industry," says C-store industry authority John Roscoe. "The oil companies continue to improve and upgrade their units. Most convenience stores still operate outdated units. Gallonage in these units will continue to suffer as the majors build their new million dollar units," he adds.

On the other hand, traditional firms have plenty working for them too, say C-store executives.

"We are pretty well developed and we feel

Corner Shop

Coastal
Coastal
Mart

Large independent oil companies like Diamond Shamrock, Coastal and Crown Central have staked out strong regional market positions with C-store outlets that rival the traditional chains in store size, product offerings and promotional sophistication.

Marketers and C-store chains alike are racing to provide larger stores with space for more equipment such as coolers, freezers, microwaves and the like. Fast food and deli-type operations offering in-house prepared foods, fresh baked goods, etc. represent the new frontier for many in C-store marketing. Such operations deliver high markups, but some marketers shy away from the labor intensive requirements of fast food service.

we are still experts in C-store marketing. We can't downplay their (majors) strength, but we are still a superior C-store merchandiser," says a Southland spokesperson.

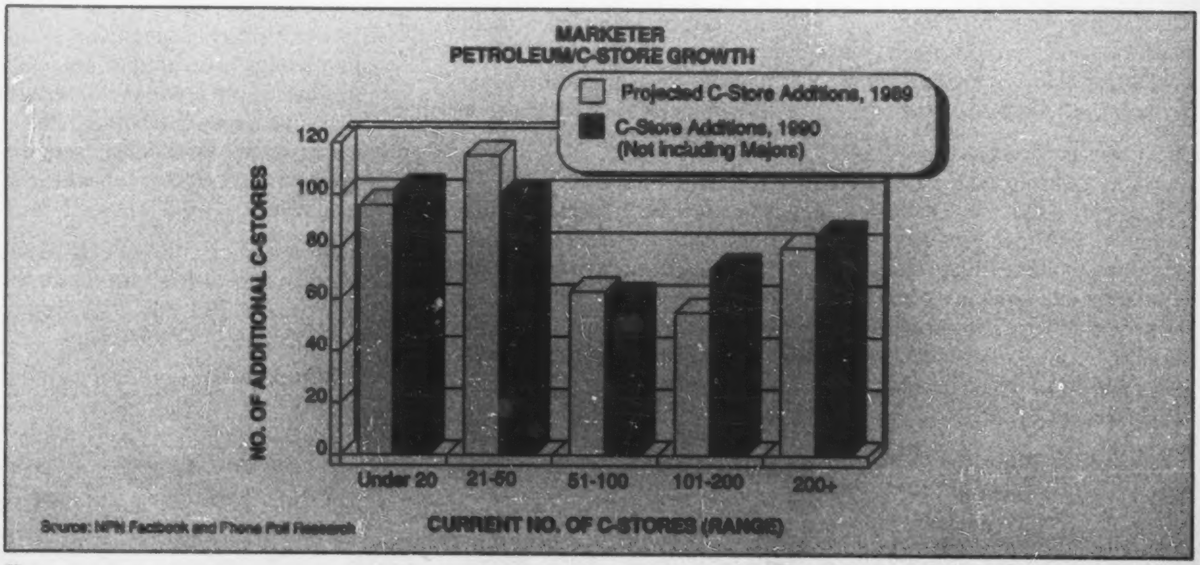
Southland believes, like many of the other C-store companies, that it still has an edge over the majors because, "We have been selling gasoline longer than the majors have been in the C-store business." And, Southland insists, "We have an edge in C-store merchandising."

Some petroleum marketers concur. Michigan jobber Tod Butler says, "The C-store companies have to do a better job of marketing and merchandising their products to compete—and many of them do just that."

Gasoline marketers bring definite strength to the C-store business, says Phil Chisholm, executive director of the Petroleum Marketers Assn. of America. "They have the advantage of knowing their local markets. They usually have a lock on the prime real estate and they're now hiring grocery and C-store people to run their convenience operations," says Chisholm.

However, Chisholm throws a note of cau-

(Continued on page 62)



Source: NPN Factbook and Phone Poll Research

(Continued from page 58)

tion into the debate. He says that marketers will have to be wary in the future, that saturation is occurring in some areas. "The C-store chains are overbuilt—in five years we could be in the same fix that occurred with the overbuilding of service stations." He adds that most C-store growth will probably occur among marketers who are already established in the business. "Those that are just getting in are seriously lagging behind in the industry growth curve," he says.

Some C-store executives concede oil firms have certain edges in the market. Jim Burkhalter, vice president, gasoline marketing manager for Sunshine Jr. Stores Inc., Panama City, Fla., says the companies have the resources, advertising budget, brand image and credit cards. However, Burkhalter also says that a company like Sunshine has a leg up on petroleum marketers because of its expertise in store operations.

One large independent says in order to succeed in the C-store business, petroleum marketers should hire the best C-store managers they can find. "C-store operators are much more detail oriented and have control and knowledge of merchandising. In order to succeed you need to get people with C-store experience. You can't use people with an oil background...."

On the other hand, Jim Hutchenson, manager of retail operations, Aztex Enterprises, a Knoxville, Tenn., petroleum marketer, believes his company has an edge on C-store chains "because we do it better. We emphasize customer service and we're attuned to the local market." He says, "the C-store companies are having problems because they tried to do too much too quick. They've created a management nightmare."

However, Hutchenson also suspects the professional capabilities of some major oil firms that are getting into the C-store business. He notes that several big new stores opened by majors in the area have relatively little stock on the shelves—very little in-store inventory. "How can they get their investment back?" he asks.

Another problem cited by industry observers is C-store/station layout. "One of the problems with marketers entering the C-store race is that the petroleum layout is designed to serve the gasoline station," says Dan Katz. "The C-store chains (Circle K, Southland, etc.) have installed pumps away from the food, letting the public know it's a C-store with gasoline, not a gasoline station selling C-store items," he notes.

Even though the majors have strong economic resources and prime locations, Southland officials, for instance, say its name recognition and Citgo gas market very well together.

In fact, one industry observer notes that "most of the sales at a gasoline station are impulse sales, while C-stores have people coming in for the convenience...The petroleum industry has a lot of work ahead of it to change the mentality of customers."

Even Roscoe cautions that success depends heavily on knowing exactly which of these businesses you actually operate—and that, he emphasizes, has nothing to do with the size of your store even though the industry uses that gauge. "Store size is the result of the function being performed. It is not a distinguishing characteristic."

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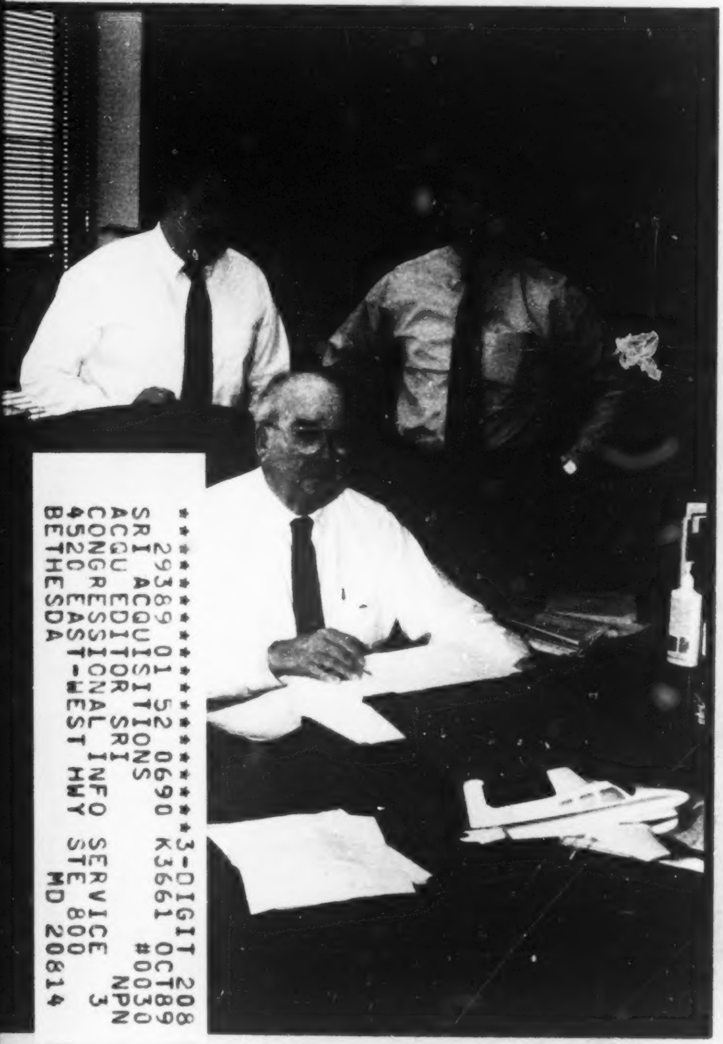

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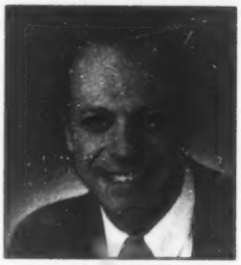

Editor's Viewpoint

Few people would question that the onslaught of current and pending legislation and regulation ranks among the biggest problems this industry has encountered since decontrol. The impact, directly or indirectly, has for the most part been negative. But there is, perhaps, one positive side effect: the industry seems to be pulling together as it rarely has in the past to alleviate the problem or at least prevent it from getting even further out of hand. One indication is that associations are working in closer cooperation and forming a united front to present the industry's viewpoint.

Most recently, the Petroleum Marketers Assn. of America, the Society of Independent Gasoline Marketers Assn. of America and the National Assn. of Convenience Stores joined to schedule an "environmental rally" in Washington D.C. on October 4. The purpose is to gather petroleum marketers and C-store operators from across the country to directly lobby Congress on the key issues of Stage II vapor recovery and financial responsibility for underground storage tanks. As this issue was going to press, a good many marketers apparently were planning to participate in the event.

These same associations, along with the American Petroleum Institute, not long ago hammered out a model state underground tank bill that was satisfactory to everyone involved. There are other instances of this unified approach. Whatever differences or competition or rivalry there may be among these groups seems to have been put on the back burner as they work together for the common benefit of all their members. All of them have a stake in what's happening. All have something to gain and something to lose. Even the Service Station Dealers of America, an unlikely ally of associations that represent jobbers and oil companies, has joined in on certain issues. SSDA and API, it should be noted, have been working together for years to promote on-board canisters on automobiles as an alternative to Stage II.

While meeting with officials of these associations in Washington a few months ago, this cooperative attitude was clearly evident to me. I hope it continues. Each of these groups has its own particular strengths, its own contacts and Congressional backers. API can be a powerful lobbying organization and its broad technical resources can provide solid support for arguments made by the jobber and dealer associations that represent a broad spectrum of independent businessmen from the very large to the very small. Working together, they present a formidable, cohesive front that lawmakers and agency bureaucrats will find hard to ignore. What these associations need most now is the strong and broad based support of their members.

—Frank M. Victoria

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Illinois-based Vista Marketing Group, Ltd. has reduced its annual net gasoline buying prices from three-to four-tenths of a cent a gal. with its in-house developed computerized pricing system.

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Electronic payment systems through on-site POS terminals are beginning to sweep through the industry in big numbers. Marketers now have better access to POS systems than ever before.

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ORE
RESTAURA

Award-winning truckstop marketer Browne Barr pulls in the traffic by offering truckers the type of services they want in a clean, well-lit environment.

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• TRENDS

Analyst's Idea: Fill SPR With Low-Price OPEC Crude Oil Surpluses

Economist John Lichtblau some time ago advanced a suggestion that might do a world of good for some members of the Organization of Petroleum Countries and, at the same time, benefit U.S. taxpayers by cutting government spending as well.

Keep an eye on it; it could catch on. And if it does it could be very helpful in sopping up global crude oil surpluses.

Lichtblau, president of Petroleum Industry Research Foundation, says the OPEC states could sell or lease—at discounted prices—some of their excess supplies of crude oil to the United States for deposit only in the nation's Strategic Petroleum Reserve (SPR).

That would enable the OPEC states to generate a much-needed cash flow that they might otherwise not get for years to come and would enable the U.S. to fill its SPR vaults at a reduced cost that would not stress the nation's already strained budgets.

The main point, however, is that the OPEC states could produce and sell the excess crude to the SPR without violating their tenuous agreements covering production quotas and market economics.

It almost sounds too good to be for real.

The U.S. will need, between now and the year 2000, up to 250-million/bbl. of crude oil to bring the SPR to its government-approved level of 1-billion/bbl. That would be enough crude to sustain the nation for a minimum of 98 days should an international crisis develop or some other calamity curtail foreign oil.

Keep in mind that U.S. dependency on imports, especially from OPEC, will continue to grow through the '90s and will probably be in the neighborhood of 60-65% by 2000. This is essentially what the SPR is all about—an escape hatch for U.S. consumers. Remember what happened in the '70s when oil supplies dwindled and the world went mad?

Lichtblau presented his case at the 11th annual international energy conference in Caracas, Venezuela. Venezuela, by the way, is an OPEC member whose domestic economy is in very bad shape and would benefit materially from a stepped-up infusion of much needed cash.

Lichtblau's argument is persuasive:

"The community of interest between buyer and seller in a transaction of this nature is based on the assumption that the U.S. government wishes to procure incremental volumes of crude oil for noncommercial purposes and cannot pay the commercial market price for these incremental volumes. The supplier, on the other hand, should be interested in providing oil at a profit from his unused surplus which would otherwise remain in the ground and earn no money at all for a very long time."

Lichtblau also suggested that in the event OPEC members do not want to sell their crude oil excesses at a discounted price, they might be interested in a leasing arrangement in which the crude oil would be deposited in the SPR for a nominal rental fee. The terms of the lease agreement would have to be negotiated as would the ownership or title of the crude oil upon the expiration of the contract.

Says Lichtblau:

"It should be pointed out that while leasing SPR oil instead of buying it at (current) market prices reduces the annual cash expenditure, the cumulative cost over time is likely to be the same (or perhaps even more) for the United States. Thus the advantage (of this concept) is primarily the reduction in annual budget outlays."

Even that would be welcome news. In this day of mega-billion budget deficits, anything that reduces government spending would be welcome news for most U.S. taxpayers.

—by J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

JULY	**Gasoline (All types)**	**Leaded Regular**	**Unleaded Regular**	**Unleaded Premium**
U.S. City Avg.	$1.132	$1.075	$1.092	$1.264
Regions				
Northeast	1.150	1.070	1.090	1.285
North Central	1.131	1.097	1.095	1.285
South	1.122	1.067	1.078	1.237
West	1.130	1.071	1.111	1.278

Source: U.S. Dept. of Labor, Bureau of Labor Statistics.

STOCKS (Add 000 bbl.)

	9/1/89	**9/2/88**
Gasoline (All types)	17,725	217,836
Gasoline (Unleaded)*	156,501	38,075
Jet kerosine	41,711	40,629
Distillates	116,792	123,364
Residual	42,156	38,800

** Included in gasoline total.*

Source: American Petroleum Institute.

Updated EIA Forecast Suggests Return To $1/Gal. Gasoline Prices

Uneasy pump postings this past August and with the return of 97¢ unleaded regular in many marketplaces pretty well confirmed what federal forecasters said in their mid-summer update—that gasoline prices are eroding again and will continue their downward ways until late next spring.

The Energy Information Agency short-term forecast predicted that gasoline prices would peak in the third quarter at an average of $1.14/gal (all grades and services), then would slide over the winter months to $1.01 or $1.02/gal. by next April. The new forecast, dated this past July but published in August, made only a few changes in the basic assumptions and statistics [*NPN*—July '89, p23].

Demand growth is expected to continue in 1990, but at a pace that's hardly noticeable—1%. The projections are based on $17/bbl. crude oil, which is about what the refiners were paying for it in recent months.

There's an outside chance that Kuwait and Saudi Arabia may step up their crude oil output in a temper tantrum and that could easily raise specters of the 1986 price collapse again.

Following are highlights of the latest EIA short-term forecast.

MID-TERM OUTLOOK; FIRM PRICES THIS YEAR, SOFTER NEXT

	1Q	2Q	3Q	4Q	Full Year	% Chng
			PRICE PROJECTIONS (¢ gal.) (a)			
1989						'89/'88
Motor gasoline(b)	$0.96	$1.13	$1.14	$1.09	$1.08	12.5%
No. 2 diesel fuel	.92	1.00	.96	.95	.96	5.5
No. 2 heating oil						
Wholesale	.53	.55	.52	.56	.54	14.9
Retail	.86	.87	.82	.8	.85	4.9
Residual(c)	.36	.41	.39	.40	.39	16.7
1990						'90/'89
Motor gasoline(b)	1.01	1.02	1.12	1.09	1.06	(1.9)
No. 2 diesel fuel	.94	.92	.92	.94	.93	(3.1)
No. 2 heating oil						
Wholesale	.54	.50	.52	.56	.54	0.0
Retail	.89	.85	.83	.88	.88	2.4
Residual(c)	.41	.38	.38	.40	.40	1.2
			DEMAND PROJECTIONS (million b/d)			
1989						'89/'88
Motor gasoline	7.08	7.38	7.76	7.40	7.41	1.0
Leaded	1.00	.96	1.12	1.02	1.02	(23.9)
Unleaded	6.08	6.42	6.64	6.38	6.38	6.3
% Unleaded	86%	87%	96%	86%	86%	4.0%
Distillates	3.38	2.88	2.83	3.36	3.11	(0.3)
Residual	1.60	1.26	1.12	1.28	1.32	(4.3)
TOTAL U.S.(d)	17.62	16.73	17.38	17.71	17.36	0.5
1990						'90/'89
Motor gasoline	7.01	7.67	7.72	7.47	7.47	0.8
Leaded	.93	.97	.94	.87	.93	(9.7)
Unleaded	6.08	6.70	6.78	6.60	6.54	2.5
% Unleaded	87%	87%	88%	80%	89%	2.0%
Distillates	3.61	2.93	2.85	3.39	3.20	2.9
Residual	1.28	1.06	1.08	1.25	1.17	(11.4)
TOTAL U.S.(d)	17.57	16.99	17.39	17.86	17.45	0.5

(a) Includes federal and state taxes on all products except heating oils, which are un-taxed;
(b) Average for all grades and services;
(c) Average for all grades and sulfurs;
(d) Includes all other oils.

Source: Energy Information Administration, Short-Term Energy Outlook, dated July and published in mid-August 1989.

Gasoline Trends: Reformulation Challenges Alternative Fuels

Gasolines in the United States are changing with dazzling speed. Events since the early 1970s have conspired to force unprecedented modifications, but nothing has so galvanized the oil industry as the threat of alternative fuels, particularly methanol.

The clincher that momentous changes are yet to come is the fact that the U.S. oil and automotive industries are seemingly working together as never before to head off the environmental race to alternative fuels, if they can. All of that methanol talk was way off in California until President George Bush put it on the national agenda.

The oil industry wants governmental agencies to stop mandating particular fuels. The industry urges government to keep to establishing clean air standards and let the oil industry come up with the fuel to do it. The oil industry appears to be betting that the job can be done easily with "reformulated gasoline."

By Mark Emond
Contributing Correspondent

Reformulation trends

Gasoline has been undergoing significant composition changes ever since environmental agencies decided in the early 1970s that lead in gasoline was a serious health hazard. This led to catalytic exhaust devices and the design of engines to operate only on unleaded gasoline, introduced generally in early 1975.

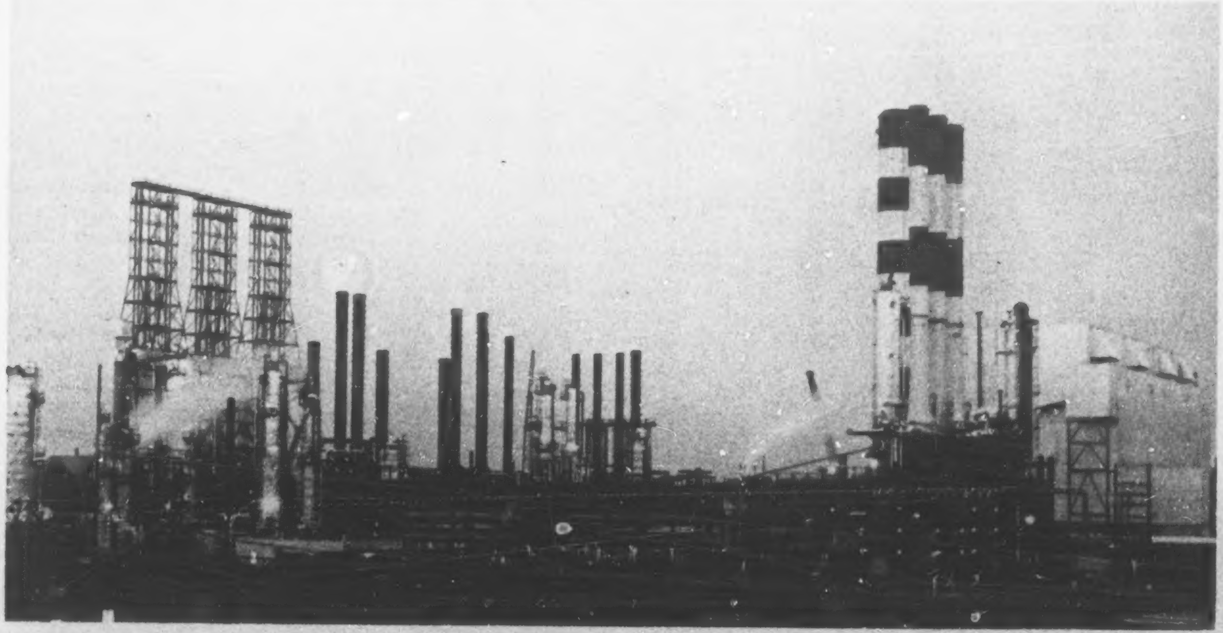
The Environmental Protection Agency further ordered the reduction of lead in the mid-1980s, down to a current minuscule 0.5-gram/gal. of gasoline. This phasedown put severe pressures on refiners, which had to come up with octanes by alternative means. The octanes were obtained by increasing the "severity" of refinery operations.

Reforming and catalytic cracking, considered "severe" processes, produce more aromatics in gasoline and increase volatility, the two main contributors to unwanted gasoline emissions. Volatility, measured by Reid Vapor Pressure (RVP), is the tendency of gasoline to evaporate into the air.

EPA would not permit use of other antiknock additives, such as MMT, a manganese compound, because they are claimed to increase hydrocarbon emissions. This policy might change in the future, but the ban has stood since 1977. Probably the most that could be expected by a lifting of the prohibition is a gain of between 0.5 and 1-octane numbers at the very small concentrations EPA would likely allow.

This might seem like a small gain for some MMT producers and oil refiners to be earnestly seeking, but any pressure taken off octane production reduces the need to manufacture aromatics and lighter products, such as butane, which increase volatility.

One route that is now acceptable is to use oxygenates to help clean up emissions. Among the oxygenates, ethers are stealing a march on ethanol and methanol because of their high octane quality, relatively low



The EPA's lead reduction order in the mid-1980s, down to a current minuscule 0.5-gram/gal. of gasoline, put severe pressures on refiners, which had to come up with octanes by alternative means. Mostly, the octanes were obtained by increasing the "severity" of refinery operations. Reforming and catalytic cracking, considered "severe" processes, produce more aromatics in gasoline and increase volatility, the two main contributors to unwanted gasoline emissions.

Percentage of U.S. Motor Gasoline Sales by Grade 1983-1989

Year	Regular Lead	Regular Unleaded	Middle Unleaded	Premium Unleaded
1983	46.6%	41.5%	—	11.9%
1984	41.6	44.3	—	14.1
1985	37.2	47.6	—	15.2
1986	31.8	51.0	—	17.2
1987	23.7	56.0	—	20.3
1988	17.5	59.3	—	24.2
1989*	13.1	57.9	4.8	24.2

* First 4 months.

Source: Energy Information Administration, NPN estimates.

vapor pressure and compatibility with hydrocarbons in the refining process. MTBE can also be manufactured at the refinery.

Because of these advantages, the ether class of oxygenates "will eventually preempt the position of alcohols as gasoline blending agents," says George Unzelman, president of Hy Ox Inc. and a recognized authority on gasoline composition.

An alternative to ethanol, using methanol with co-solvents, has already been largely supplanted by methyl tertiary butyl ether (MTBE). Ethyl tertiary butyl ether (ETBE) has not gained the widespread use that MTBE has, but could replace ethanol eventually except for small-scale downstream blending.

ETBE would probably require tax credits, as ethanol does, to compete with MTBE. Since ETBE can be manufactured in part from a variety of biological materials, such as garbage, it is renewable and might attract environmental attention for that reason, too.

In areas with seasonal carbon monoxide problems, like Denver and Phoenix, oxygenates are being mandated to improve gasoline burning. Ethanol is favored by some marketers, but refiners generally prefer MTBE. Although this problem is sometimes viewed separately, it is part of the larger problem of cleaner air.

Other ethers might have a potential in U.S. gasoline. Their relative value is still being studied. Other improvements could come in refinery process technology. But, in general, the pattern for obtaining higher octanes has been established, Unzelman believes.

Exit leaded

A total phaseout of lead in gasoline was originally planned under provisions of the federal Clean Air Act of 1970. Subsequently EPA directed a phaseout beginning in 1977.

Total lead elimination was planned by Jan. 1, 1988, but in response to pressures from various groups contending that older vehicles and farm equipment needed leaded gasoline, EPA indefinitely delayed complete phaseout.

As a result of the lead phasedown and other factors, refiner sales of leaded gasoline fell from approximately 73% of their total gasoline sales in 1977 to 18% in 1988. As companies dropped leaded in favor of a three-grade unleaded slate, leaded sales continued to drop, amounting to less than 12% nationally in August 1989.

Skidding leaded sales caused refiners to look for better ways to utilize their three-grade capabilities. A middle grade of unleaded gasoline was the favored response. It was usually of 89-octane numbers, the same as that of the displaced leaded regular.

The introduction of middle grades had little directly to do with cleaner air, but it was a consequence of the government mandate to phase down use of lead.

After Amoco first introduced a middle grade in Jacksonville, Fla., in early 1986, other companies followed the same year. On the comeout, Amoco's midgrade achieved 16% of sales. This and other factors seemed to be saying that the public was not entirely satisfied with the 87-octane unleaded regular the industry almost universally offered. Sales of unleaded premium had grown from 12% of total gasoline sales in 1983 to 23% in 1988, according to the Energy Information Administration.

Since 1986, sales and markets of unleaded midgrade have expanded significantly in PAD District I, which is the East Coast from Maine to Florida, and modestly in PAD II, the Midwest (see table). Data are provided by the EIA, which began tracking midgrade sales and prices in 1989.

On a U.S. map of states with 3% or more unleaded midgrade sales, only two states west of the Mississippi do, Missouri and Louisiana. East of the Mississippi, only six states do not: Minnesota, Wisconsin, Iowa, Arkansas, Kentucky and Vermont.

In the first quarter of 1989, EIA reports, midgrade sales amounted nationally to 4.8% of total gasoline sales. These sales were mostly in PADD I, where in March they accounted for 58.6% of all the unleaded midgrade sold in the country. In PADD I, midgrade sales in March amounted to 8.6% of all gasoline sales there.

In Pennsylvania, Delaware, Maryland, the District of Columbia and Virginia, midgrade sales exceeded 10% of total sales. Maryland led with 18.1%, followed by D.C. with 17.0%.

In PADD II, March midgrade sales were 4.8% of the district's total gasoline sales. Sales were highest in Ohio, with 10%, in Indiana, with 7.7%, and in Illinois, with 7.3%.

With most of the midgrade experimentation coming from majors, independent refiners were practically left out of that growing market. They accounted for only 2.5% of total unleaded midgrade sales in March, compared with 23.4% of all grades.

Something to watch in the race for reformulated gasolines is whether majors dominate that market, too. It appears at the outset that they will, because of the potentially large expenditures that will be required to develop cleaner-burning gasolines.

Whether these competitive consequences will cause concern in governmental circles remains to be seen.

The premium race

While refiners were straining to produce more octanes, they were pushing premium sales, a seeming contradiction. A gallon of unleaded premium uses about five more octanes than a gallon of unleaded regular does, and a gallon of unleaded midgrade about two more.

During the first four months of 1989, midgrade and premium sales of 90-million gal./day accounted for the consumption of 405-million more octanes a day than would have been consumed had unleaded regular been sold instead—30-million octanes in midgrade and 375-million in premium.

These extra octanes amounted to 1.5% of the total 27.447-billion octanes a day, or 309.9-million gal./day, sold during the first four months of 1989. The weighted-average octane number of all gasolines sold during this period was 88.57

The appeal to refiners is, of course, better average margins. Refiners have been very successful in upgrading buyers to unleaded premium, and more recently to unleaded midgrade. In 1983 they sold only 11.9% as premium, but in 1988 they sold 23.2% of that grade. During the first four months of 1989, unleaded premium sales were 24.2% of the total.

Leaded regular sales declined from 46.6% in 1983 to 17.5% in 1988 and to 13.1% the first four months of this year.

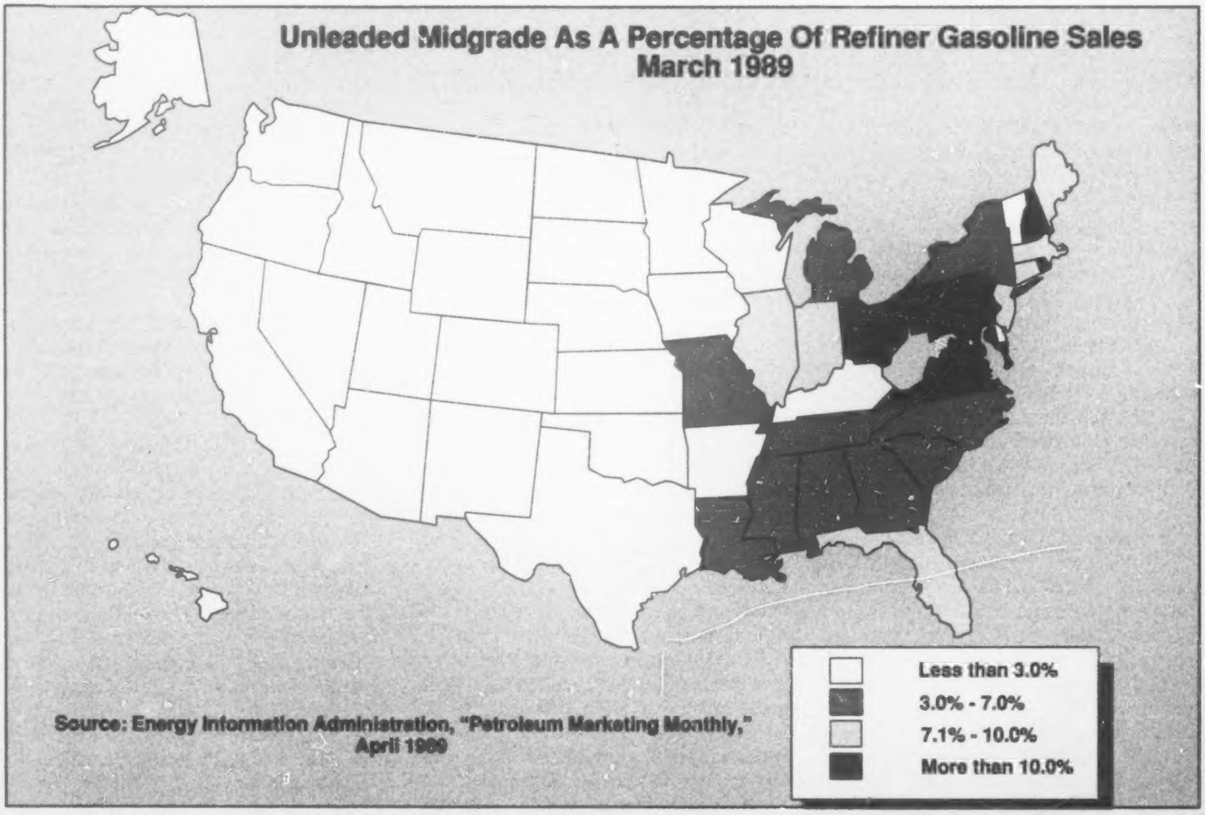
Unleaded regular sales grew from 41.5% in 1983 to 59.3% in 1988 and to 57.9% the first four months of 1989. (Note: EIA had lumped unleaded midgrade sales into unleaded regular sales prior to 1989. In January 1989, EIA calculated the bias eliminated by excluding midgrade from regular-grade sales was 4.4 to 5.3 percentage points, depending on class of trade.)

Combined middle and premium unleaded sales accounted for 29% of gasoline sales in the first four months of 1989. Since these products are sold at premium prices over unleaded regular, refiners and marketers enjoy appreciably larger average margins.

The aggregate amount of these premium prices is considerable. According to EIA data, U.S. average midgrade prices were 7.90¢/gal. higher than leaded regular prices in March 1989 and unleaded premium prices were 13.02¢/gal. higher.

NPN calculates that higher pump prices on these grades totaled $5,708,000/day in March. At this rate, the premium paid by consumers for midgrade and premium in a year would total more than $2-billion. (This premium would be shared by refiners and resellers.)

Are midgrade and premium sales a waste of octanes? Perhaps. About 80% of cars currently on the road should be satisfied by 87-octane regular unleaded, 90% by 89-octane midgrade, and 98% by 92-octane premium. Only 5% of new cars have owner's manual premium recommendations.


Unleaded Midgrade As A Percentage Of Refiner Gasoline Sales
March 1989

Source: Energy Information Administration, "Petroleum Marketing Monthly," April 1989

The map shows that of the states with 3% or more unleaded midgrade sales, only two states west of the Mississippi do, Missouri and Louisiana. East of the Mississippi, only six states do not: Minnesota, Wisconsin, Iowa, Arkansas, Kentucky and Vermont. According to EIA, midgrade sales amounted nationally to 4.8% of total gasoline sales in the first quarter of this year, mostly in PADD I, where in March they accounted for 58.6% of all the unleaded midgrade sold in the country. In PADD I, midgrade sales in March amounted to 8.6% of all gasoline sales there. In Pennsylvania, Delaware, Maryland, the District of Columbia and Virginia, midgrade sales exceeded 10% of total sales. Maryland led with 18.1%, followed by D.C. with 17.0%. In PADD II, March midgrade sales were 4.8% of the district's total gasoline sales. Sales were highest in Ohio, with 10%, in Indiana, with 7.7%, and in Illinois, with 7.3%.

Unleaded Midgrade Sales As A Percentage Of Refiner Gasoline Sales, Jan.-Mar. 1989

	Jan.	Feb.	Mar.
United States	4.4%	4.6%	4.8%
PAD District I	8.3	8.3	8.6
PAD District II	4.1	4.5	4.8
PAD District III	2.5	2.7	3.0
PAD District IV	*	*	*
PAD District V	0.5	0.5	0.5

* Withheld to avoid disclosure of individual company data.

Note: PADD I, East Coast; PADD II, Midwest; PADD III, Southwest; PADD IV, Rockies; PADD V, West Coast.

Source: Energy Information Administration.

But many motorists perceive a value in premium gasolines. Some say they experience better performance when they use the middle and premium grades. Many undoubtedly do. Premium gasolines usually contain larger doses of additives for cleaning carburetors, fuel injectors and intake systems.

If refiners can come up with the octanes, it's evidently profitable for them and their marketers to promote midgrade and premium, and efforts to upgrade consumers will doubtlessly continue.

Oil, auto industry join

It isn't clear just when it happened that the oil and automotive industries decided to get together to work out an acceptable approach to cleaner air. Probably regular inter-industry liaison people started conversations, but top management would have to become involved to start the ball really rolling.

When James S. Morrison, executive vice president of Atlantic Richfield and the marketing member of the triumvirate that runs the company, testified before the South Coast Air Quality Management District in December 1988, he predicted that a group of oil and auto companies would reach an agreement within 90 days on a project to develop cleaner engines and fuels to meet tighter clean air standards.

Something was in the wind, but as events turned out, not an agreement so soon. A high-level Detroit meeting in July 1989 brought together top executives of Amoco, Atlantic Richfield, Chevron, Shell, Texaco, General Motors, Ford and Chrysler. Unocal and others are reported to have become involved since that time. Another meeting was reported on the way.

Some goals are conflicting. Essentially, the oil industry wants auto manufacturers to design new engines and install on-board equipment to help clean up the air. Auto makers, who believe they have borne the main cleanup burden so far, want oil companies to lead the way with cleaner fuels. Perhaps the differences can be patched up.

Both industries, despite their differences, appear to be united by the common desire to stop the methanol bandwagon.

Methanol is not the only alternative fuel that could cause upheaval, but the principal one. Other frontrunners are compressed natural gas, propane and methanol-gasoline blends.

More on these joint efforts will undoubtedly be heard, but meanwhile Arco has jumped to the forefront in what seems certain to develop into a heated race to reformulate gasolines.

Arco's new gasoline

Arco announced in August that beginning September 1 it would drop leaded regular in southern California and substitute a low-emission unleaded regular to reduce air pollution from pre-1975 cars and pre-1980 trucks. These are the vehicles that were designed to use leaded gasoline and were not equipped with catalytic converters.

The wider leaded-regular nozzles were to be used on the new product, called EC-1 (emission control). This means that only older cars and trucks would be affected. The target is the 1.2-million older vehicles, or 15% of all vehicles on the road in southern California, that cause more than 30% of the area's pollution, Arco said.

Arco made clear that this was only a first step, that the objective was to make cleaner burning gasolines for new cars next, and then devote many millions of dollars to meeting stringent regulations already laid down in California for the year 2000 and beyond (see page 16).

From the standpoint of gasoline composition, Arco's formulation changes are consistent with the established patterns described above.

Here's what Arco says about the new fuel. MTBE is added for octane enhancement. EC-1 contains a minimum of 1% oxygen by weight. Olefins and aromatics, which combine in the presence of sunlight to create smog, are lowered by one-third. Benzene, considered a carcinogen, is reduced by about 50%. Sulfur content is lowered by up to 80%. RVP is cut 1-psi (pound per square inch) below the current standard. EC-1 emits less carbon monoxide than usual fuels do.

It seems clear that Arco's is just the first of what will be many gasoline reformulations. An Arco spokesman admits that the company was apprehensive for some time that the planned introduction would be upstaged by some other company's announcement. Other companies may be that close.

In the spirit of the traditional intense marketing competition among oil companies, the introduction of each new formulation is likely to be accompanied by fanfare and hype. Arco plans to spend $10-million in advertising and promotion to launch EC-1. The process seems likely to continue for many years to come.

Some environmental officials think the best solution will be a combination of fuels. Skeptics believe oil companies, in their desire to avoid scrapping their gasoline technologies, may tend to be overenthusiastic in their claims.

The outcome of "operation reformulation" won't be known for some time, but the success or failure will likely be determined in large measure by how well the oil and auto industries can work together towards a common objective.